

MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

PUBLISHED MONTHLY BY THE MINNESOTA STATE MEDICAL ASSOCIATION

Volume XIV
Number 7

JULY, 1931

25 cents a copy
\$3.00 a year

CONTENTS

RADIO AND QUACK MEDICAL PROPAGANDA. <i>H. A. Bellows, Minneapolis.....</i>	597	Omental Cyst in a Child. <i>Oswald S. Wyatt, M.D., Minneapolis.....</i>	656
SKETCH OF THE EARLY HISTORY OF THE AMERICAN MEDICAL ASSOCIATION. <i>E. Starr Judd, M.D., Rochester.....</i>	602	PRESIDENT'S LETTER	658
EXPERIENCES IN COUNTY MEDICAL ORGANIZATION. <i>Theodore Wiprud, Milwaukee, Wisconsin..</i>	605	EDITORIAL: The Early Detection of Tuberculosis.....	659
A POINT OF VIEW IN MEDICINE. <i>E. C. Hartley, M.D., Saint Paul.....</i>	611	"Doc" Williams	660
THE INSTITUTIONAL CARE OF TUBERCULOSIS. <i>H. A. Burns, M.D., Walker.....</i>	618	OF GENERAL INTEREST.....	660
TUBERCULOSIS OF THE ANUS AND RECTUM. <i>Charles K. Petter, M.D., Oak Terrace, and Walter A. Fansler, M.D., F.A.C.S., Minneapolis</i>	622	OBITUARY	661
CARCINOMA OF COLON AND SIGMOID. <i>F. C. Schuldt, M.D., Saint Paul.....</i>	627	COMMITTEE ON PUBLIC HEALTH EDUCATION.....	662
ACUTE MECHANICAL OBSTRUCTION OF THE LOWER BOWEL. <i>James A. Johnson, M.D., Minneapolis.....</i>	635	MISCELLANEOUS Minnesota State Board of Medical Examiners	663
ACUTE ABDOMEN. <i>Ralph T. Knight, B.A., M.D., F.A.C.S., Minneapolis</i>	643	NEW AND NON-OFFICIAL REMEDIES.....	664
EXTRA-OCULAR MUSCLE PARALYSIS FOLLOWING SPINAL ANESTHESIA. <i>K. R. Fawcett, M.D., Duluth.....</i>	648	CONSULTATION BUREAU	666
ALLERGY, ANAPHYLAXIS AND HYPERSENSITIVENESS. <i>Albert V. Stoesser, M.D., Ph.D., Minneapolis</i>	650	REPORTS AND ANNOUNCEMENTS OF SOCIETIES Medical Broadcast for the Month.....	667
CASE REPORTS: Subcutaneous Emphysema Following Aspiration of Foreign Body. <i>Porter P. Vinson, M.D., and Herman J. Moersch, M.D., Rochester.....</i>	654	American College of Physicians.....	667
		Northwestern Pediatric Society and Staff of Children's Hospital—Joint Meeting.....	667
		Redwood-Brown County Society.....	667
		Southern Minnesota Medical Association.....	668
		Southwestern Minnesota Medical Society.....	668
		Wabasha County Society.....	668
		Washington County Society.....	668
		Women's Auxiliary	669
		PROCEEDINGS OF THE MINNEAPOLIS SURGICAL SOCIETY	670
		PROGRESS: Eye, Ear, Nose and Throat.....	676
		Medicine	678
		Pediatrics	680
		Surgery	682
		BOOK REVIEWS	686

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Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society.

VOL. XIV

JULY, 1931

No. 7

RADIO AND QUACK MEDICAL PROPAGANDA*

H. A. BELLWS

Vice President, Columbia Broadcasting System, Inc., and
President, Northwestern Broadcasting, Inc.

Minneapolis

IN addressing such a group as this I feel that any layman must necessarily apologize in advance for his inability to speak the language of his hearers. Regarding most phases of the subject about which I am going to talk to you, the advertising of patent medicines and quack remedies, you all know a great deal more than I do. The only phase of it on which I may be able to give you some information is the broadcasting one. In order to do this, I shall have to dig into another of the learned arts, with which I am only a little more familiar than I am with medicine: the law. Considering, then, that I am going to talk to you about certain applications of the law to medicine, and begin by saying that I know nothing of either subject, you can well see how thoroughly qualified I am to address you.

I want to begin by saying that I regard the use of radio broadcasting for propaganda in behalf of fake medicine as constituting one of the most serious perils which the public health of America has to face. There are now, in round numbers, fourteen million radio receiving sets in use in the United States, and it will not be long before this figure is up to twenty million. Now, the most important feature of practically every one of these receiving sets is that it is in use in the home. It is used by every member of the family. Babies unable to walk are taught to crawl to the radio set and turn it on; Great-Grandpa, after he has ceased to be useful for any other purpose, can still play with the dial.

Another important thing to note is the general decrease in the price of receiving sets. There was a time when radio reception showed a certain amount of selectivity for the reason that re-

ceiving sets cost enough so that a great many homes could not afford them. Now, however, commercial sets are available at prices which put them within the reach of almost everybody.

All this means that radio today has a total circulation infinitely greater than that of any other single medium of communication. A program on either one of the two great national chains can reach practically every one of these fourteen million receiving sets. Compare this figure with the circulation of, say, three million claimed by the largest of our periodicals, or with the several hundred thousand of a metropolitan newspaper, and you can readily see the tremendous potential importance of radio as a medium of publicity.

Nor is this all. I do not need to tell you how much more effective an appeal can be made to the ear through speech than to the eye through the printed page. To begin with, there are enormous numbers of people to whom reading is an effort. Their minds respond with difficulty, if at all, to what they see in print. These are the classes of people who are most likely to be influenced by unsubstantiated claims for medicines and alleged cures. They are credulous, gullible and the victims of unfulfilled hopes.

Another thing to consider is the curious authority which radio enjoys with the great mass of its listeners. This comes, I think, largely from the element of magic which enters into our feelings about anything we do not understand. The newspaper reader, although he cannot tell you accurately how the paper is printed, has flattened his nose against the windows of a printing establishment long enough to have a vivid picture of how the presses revolve. The newsboy who delivers the paper at his door is a familiar urchin, probably his next door neighbor's son.

*Presented before the annual conference of secretaries of the component societies of the Minnesota State Medical Association, Saint Paul, February 7, 1931.

There is no magic in any of this. But when he goes to a little wooden box and turns a switch, speech and music come to him out of nowhere. It is small wonder that he does not know what is happening, because the greatest engineers are only a little better informed on the subject than he is.

After all, there is a good deal of magic about radio, and the messages that come over the air have very definitely a peculiar significance. People tend to believe in them because of the manner in which they come.

This is clearly shown by the way in which such broadcast statements produce action. In general, we all complain that we write and speak and work without producing any particular results. People may listen to us, or watch us, or read what we write, but as a general thing they promptly proceed to forget all about it. Not so with radio.

I have gone into so much detail in order to make you realize what I am pretty sure you understand already: the tremendous potential power of radio broadcasting. I want to make it plain that this power is very much greater than would be indicated by the actual number of receiving sets, great as that number is. It is a power which combines vast circulation with the effectiveness of a medium appealing to all classes of people, and appealing with particular force to that class of people whose judgment has not been trained by education. In other words, it is a particularly fertile field for the quack medicine advertiser.

This brings me straight to the question of the commercial status of broadcasting. First of all, I want to make it plain that, taken as a whole, broadcasting has not as yet made any money. It is perfectly true that the volume of radio advertising has enormously increased, particularly in the past two years, but it is equally true that the cost of operation has fully kept pace with revenue. This has been largely because of the need of new capital expenditure. Radio communication is so new, and is developing so fast, that equipment becomes obsolete almost before it is installed. There is hardly a first class radio station in the country that is using today the same studios of which it was so proud five years ago. Transmitters have either been completely rebuilt or are on the way to the scrapheap to make way for newer and vastly more expensive ones.

When, in 1925, WCCO began operating its 5,000 watt transmitter, it was the last word in broadcasting construction, and everybody called it a "super-power" station. Today we are completing plans for the construction of a 50,000 watt transmitter, ten times as powerful as the old one, and nearly ten times as expensive.

Another thing I want to try and make clear is that the ownership and operation of a broadcasting station is not in itself a particularly good advertisement for the owning and operating company. There is a very close analogy in this between broadcasting and the newspaper business. For example, it presumably pays the Northern Pacific Railroad to advertise in the *Saint Paul Dispatch*, but it presumably would not pay the railroad to own the *Saint Paul Dispatch*. Exactly the same thing is true in radio. When, for example, Washburn Crosby Company, now General Mills, Incorporated, built the present WCCO, the Company believed that the ownership and operation of the station would help to sell Gold Medal Flour. I very much doubt if it has done so to any marked extent. On the other hand, General Mills is thoroughly convinced of the value of radio advertising. It actually accomplishes more in the promotion of sales by a single half-hour program once a week over WCCO than it did through all the announcements of its ownership of the station in the days when WCCO was actually owned and operated by Washburn Crosby Company.

What this means is that there is no longer any hope that broadcasting stations can be operated, as they were in the beginning, simply as publicity agents for their owners. For a long time it looked as if the stations owned and operated by newspapers might be exceptions to the general rule. The newspaper stations were, as a class, the last ones to go into the business of selling time, but even with these stations the owners found that any definitely traceable good which their companies were deriving from the ownership and operation of the station was nowhere near as much as could be purchased spending the same amount of money another way. In other words, it is far more effective advertising to put a commercial radio program on forty different stations than it is to put forty of your own programs on one station.

With our whole structure of radio broadcasting based on the use of radio for advertising, and

with broadcasting stations as a whole just about breaking even, particularly in view of the evident necessity of heavy capital expenditure within the next few years, it is perfectly obvious that there is a good deal of a scramble for business. And because, for the reasons I have already given, radio is a peculiarly effective medium for alleged medical advertising, the manufacturers of patent medicine, and the sponsors of so-called "cures," have been among the foremost to try and purchase time. The number of these prospective clients for broadcasting, and also their persistence, are growing steadily. Not a day passes without bringing to WCCO one or more orders from patent medicine manufacturers, all of which, of course, are promptly turned down. So far as immediate returns go, I suppose our policy in this matter has cost us easily a hundred thousand dollars in the past twelve months. I do not in the least regret the position we have taken, because I believe that the general standing of a broadcasting station in its community is in the long run infinitely more important than its immediate profit, but I want to make you see why so many stations have yielded to temptation.

Of course the real question is: What are we all going to do about it? In order to give you the background, I have to discuss for a few minutes the special laws under which broadcasting operates. As many of you know, I was one of the original members of the Federal Radio Commission, and through my work in Washington, and also as chairman for the past three years of the Legislative Committee of the National Association of Broadcasters, I have had occasion to study the radio laws pretty carefully.

First of all, broadcasting has been definitely held to be interstate commerce. The whole structure of our radio law is based on the power given to Congress by the interstate commerce clause of the Constitution, and the courts have upheld this view without qualification. In one instance a case was brought by a little station which attempted to deny the authority of the federal government on the ground that the station could not possibly be heard outside the limits of its own state, and that therefore its regulation was purely a state matter. The court, however, held that even in this case the possibilities of interference crossed the state line, and that all broadcasting was therefore to be considered as interstate commerce.

This means that there is practically no hope

of any effective regulation of radio broadcasting through state legislation. One or two states have actually tried to pass radio laws of their own, but in every case, so far as I know, these laws have been found unconstitutional by the courts just as soon as they varied in any respect from the federal law. Any attempt to put a curb on the activity of any radio station through state legislation is practically certain to result in failure, for the simple reason that the state courts simply will not accept jurisdiction.

Now let us see what the Federal law provides. The Radio Act of 1927 makes it mandatory upon the licensing authority, which is the Federal Radio Commission, to issue a license to any station if it can be shown "that public interest, convenience or necessity will be served thereby." Now, nobody knows what "public interest, convenience or necessity" actually means. The phrase has never been fully defined by the courts, and probably never can be defined by anybody.

Any radio station can make a convincing showing that the public is interested in its operation. The redoubtable Mr. Henderson, whom some of you may have heard, brought to Washington several huge bales full of signed affidavits from listeners to the effect that his station was the best on the air. I remember a little 10 watt station down in Iowa, the existence of which seemed to me a doubtful blessing. I asked the owner of it if he thought he was really doing anybody any good by running his station. He undertook to show me, and he did so by producing, in about a week, over ten thousand letters from listeners telling him how much they enjoyed his programs.

Furthermore, the radio law as it now stands does not give the Federal Radio Commission authority to revoke a license as a method of punishment, though an amendment giving this authority has just been introduced. Violations of law by a radio station are subject to punishment by fine or imprisonment, and action has to be taken through the Federal District Attorney. This explains why certain radio stations which have conspicuously violated the law, or which have been operated in clear violation of public decency, are still enjoying licenses from the Commission; the poor old Commission simply has not the power to revoke their licenses unless it can affirmatively prove that their operation is not "in the public interest, convenience or necessity."

There is one more provision of the Radio Act which is important in this connection. It is spe-

cifically provided that "nothing in this Act shall be understood or construed to give the licensing authority the power of censorship over the radio communication or signal transmitted by any radio station, and no regulation or condition shall be promulgated or fixed by the licensing authority which shall interfere with the right of free speech by means of radio communication." If you will stop and think of this clause for a moment, you will see that it practically deprives the Federal Radio Commission of any power whatsoever in putting a stop to misleading or fraudulent statements made over the broadcasting stations which it licenses. Congress was so anxious to restrict the power of the Radio Commission to the purely technical side of its work that it took away all power of controlling the use to which its licenses might be put.

With the law in its present state, I think it is useless to look to the Federal Radio Commission for any direct action in checking or restricting the broadcasting of quack medical advertising. There is, indeed, one rather clumsy piece of machinery which can be set in motion. If the Federal Trade Commission certifies to the Radio Commission that a station is being used for fraudulent or untruthful advertising, the Radio Commission can officially take cognizance of the fact, but only to the extent of telling the station owner that the particular piece of radio advertising complained of must be modified or discontinued. Considering the fact that it takes a long time to get the Federal Trade Commission to act, and that even after it has acted the remedy is so lamentably inadequate, I cannot say that this method of trying to remedy existing conditions is very useful.

So far as the Federal laws applying particularly to radio are concerned, the only hope I can see is in the possibility of an amendment by Congress to the Radio Act. You know far better than I do the difficulties of preparing such an amendment. I believe, however, that it might be possible to draft a general clause, making it illegal to broadcast any fraudulent statement of fact, or any statement which the station owner or the advertiser knows to be untrue. Such a clause is at best very difficult to manage, because it involves specific proof of fraud, but such an amendment, if carefully drafted with the approval of the entire medical profession, would certainly help the Federal Radio Commission by giving it much needed authority and might be of

real service in some cases of patent medicine advertising.

Frankly, however, I have not much faith in the power of legislation to curb this type of advertising. I do not believe that a law can be drafted which will not have a lot of holes in it, nor do I believe that the enforcement of such a law would be much more effective than the enforcement of certain other laws which I have heard mentioned. I believe, therefore, that the best way to guard against the danger is through the use of existing laws covering slander and false statements, and above all through direct application to the broadcasters themselves.

As regards existing laws, the main trouble in applying them to broadcasting is to establish a clear proof of what is actually being said. For example, I was at one time involved in a very important case between two stations, one of which was sending out a tremendous amount of fake medical advertising. We had public stenographers make transcripts of these advertising announcements, but we found that these transcripts, although presented in the form of affidavits, were not acceptable to the court. It was not until we took dictaphone records of the programs of the station in question, including the objectionable advertising, and then produced the dictaphone record man himself in court to testify regarding the whole proceedings, that we were able to get the information in such form as to be effective.

There have been, however, a few cases in which stenographic transcripts of what has been said over the air have been adequate as evidence. One station in Iowa may soon, I hope, be compelled to discontinue a series of talks advertising an alleged cure for cancer as the result of stenographic records brought into court. This method may prove effective in the most acute cases, but it is available only when the statements are of a very extreme kind, and I do not believe it can accomplish much in preventing the ordinary run of patent medicine advertising.

By far the most effective way to stop this kind of advertising is directly through the pocketbook of the station owner. Radio advertisers are, as a rule, inclined to be very particular as to the company they keep. Before an advertiser signs a contract he is sure to ask what program will come just ahead of his own, and what one will follow. This is natural, because radio advertising is so largely dependent on creating good will

among the listeners. The circulation of a broadcasting station depends solely on the number of people who want to listen to it, and once a station becomes thoroughly offensive to a particular class of listeners, it can count them definitely out of its audience.

Now, if a station advertises patent medicine, it is not a particularly good advertising medium for clients of a more respectable sort. And there is one thing about the patent medicine advertisers that makes them, as a class, undesirable clients for even the least scrupulous broadcasting station. Practically all of them want to broadcast simply short announcements. Almost never do they want to put on real programs. They like to tell their story in a hundred-word announcement every day, or at most, a five minute talk.

Now, what the radio station wants is the advertiser who will buy at least half an hour of time and pay for a real program. If such an advertiser says to the station owner that, although he would like to use his station, he really cannot bring himself to do so because of the number of objectionable patent medicine advertisements, the broadcaster is going to do some heavy thinking. He cannot afford to lose the good advertiser who wants to put on real programs, and he is going to do everything he can to take care of him.

More and more, I believe, reputable advertisers are going to refuse to buy time on stations which accept objectionable medical advertising. Of course there are always going to be certain stations which will depend on undesirable advertising for their main revenue, just as there are publications that do exactly the same thing, but if we can keep objectionable medical advertising off of all the larger stations, the amount of harm which can be done will be very materially cut down.

More important still is the direct appeal to the broadcasters themselves. The National Association of Broadcasters has adopted a fairly definite policy in this respect, but like all trade associations, its power over its individual members is relatively weak. I believe that the best thing the American Medical Association could do would be to approach the National Association of Broadcasters with a definite proposal for a regulation to be adopted by the association of broadcasters and sent to all members. Then it would be up to the various state medical associations to keep in touch with the individual sta-

tions and see that they live up to this regulation. Speaking as one of the directors of the National Association of Broadcasters, I can pledge the whole-hearted support of that organization to any such movement, and I believe the first step should be taken by the medical association.

With WCCO, we have a very satisfactory working arrangement with the Minnesota State Medical Association, which has given us constant and splendid coöperation. Under the terms of our agreement with the Association, we refuse to broadcast any medical advertisement or talk unless it is specifically approved in advance by the State Medical Association. This, of course, means that no such material ever gets on the air from WCCO.

After all, broadcasting, which can be carried on only by virtue of a Federal license, in other words, a license from the people, is to some degree a matter of public service. This is recognized in the vague language of the Radio Act, "public interest, convenience or necessity." It is manifestly not in the public interest that the privilege granted by a Federal license should be used in such a way as to endanger the public health. If it is persistently so used, Congress will have to find a way to stop it. I believe, however, that before this happens, the broadcasters will see the wisdom of putting a stop to it themselves. Some of them understand the situation already, but a great many others will understand it only if the facts are brought to their attention in direct relation to the inevitable consequences to their pocketbooks. Just as soon as a broadcaster can be made to see that his desirable advertisers will leave him, or desirable prospects will not sign contracts, if he persists in broadcasting objectionable medical advertising, he is either going to discontinue the offensive advertising or is going to relegate himself to the class which has very few listeners. I believe the time has come for concerted action in this direction through the combined efforts of the American Medical Association and the National Association of Broadcasters, with the clear understanding that whatever is done must be followed up thoroughly and energetically by the state medical associations. I am convinced that such action will produce very desirable results, but if it should fail, there is nothing for it but to go to Congress and insist on the passage of additional legislation to prevent the use of a public license to the injury of the public health.

SKETCH OF THE EARLY HISTORY OF THE AMERICAN MEDICAL ASSOCIATION*

E. STARR JUDD, M.D.
Rochester, Minnesota

THE origin of the American Medical Association can be traced to a national convention of delegates from medical societies and colleges called by the Medical Society of the State of New York. This meeting was called for the purpose of raising the standards of medical education. This first national medical convention met at the New York University May 5, 1846. After much opposition and indignation this session continued the making and discussing of resolutions all of which were to be referred to committees to be reported back to a meeting in Philadelphia the following year.

The national convention composed of nearly 250 delegates met in Philadelphia May 5, 1847, and resolved itself into the first session of the American Medical Association. According to the historians, in this meeting of three days' duration, work was outlined which was to occupy the society for the next fifty years. All through the historical articles repeated mention is made of raising the standards of medical education. A code of ethics was established. A constitution was adopted which encouraged the formation of state and county societies. The person who deserves more credit than any other for the beginning of this great medical organization is Nathan Smith Davis. For more than sixty years Dr. Davis worked for the highest ideal in medical education, organization, and journalism. He joined the faculty of Rush Medical College in Chicago, in 1849, and, in order to work out his own educational ideas, later founded the Chicago Medical College, of which he was dean for more than forty years. His name also appears among the founders of the Illinois State Medical Society, Chicago Medical Society, Mercy Hospital, Academy of Sciences, and Northwestern University. Dr. Davis was the first editor of the *Journal of the American Medical Association*.

In these early days, there was much discussion about higher standards of medical education. At that time the annual courses of many of the medical schools occupied only four months, and the

curriculum was very inadequate. In these early years a great deal was said about preliminary education. Discussion brought out the fact that medical colleges were resentful of any attempt at regulation and each one feared to raise its own standards lest some other college in some other state would offer a more attractive bargain to the prospective student.

In 1848 authorities of colleges opposed the very modest requirements in preliminary education which had been suggested, and also opposed the extension of the term of lectures to occupy six months, because, as they said, such standards would impose unnecessary burdens on the student and deter many from studying medicine. The practitioners however favored anything that made it more difficult for medical graduates to multiply.

For many years after the American Medical Association was organized, there was much discussion as to who was entitled to membership in it. The original intention was to limit representation to state societies in regions where such organizations existed; local societies would be represented only if there was no state organization in the same region. Medical colleges, hospitals, asylums, and so forth, had representatives in the original organization.

Nathaniel Chapman was elected first president of the American Medical Association; although he had not been active in its organization, he was nevertheless one of the oldest and most eminent teachers of his time, and stood at the head of the profession. Evidently he was not very enthusiastic about the medical profession at that time, for in his presidential address he observed that the profession to which he belonged, "once venerated, has become corrupt and degenerated to the forfeiture of its social position and, with it, of the homage it formerly received."

At the meeting in 1848, Oliver Wendell Holmes urged American physicians to produce their own literature instead of republishing European works.

In 1850, for the first time, the American Medical Association held its meeting in a western city, in Cincinnati, and it is said that this meet-

*Presented before the annual conference of secretaries of the component societies of the Minnesota State Medical Association, Saint Paul, February 7, 1931.

ing gave new and strong impulse to the work of organization throughout the profession in the western states. All previous regulations on medical education were reaffirmed.

The social organization was still more active at the meeting in 1851, in Charleston, S. C. Entertainment of the delegates was featured by a trip by steamboat up the river, to visit a rice plantation, and by an elegant and costly public dinner at which the historian, who was always an ardent teetotaler, "regrets to report that for the first time in the history of the association wines and strong drinks, which beguile the unwary and intoxicate the brain, were freely furnished." Three years later, after a still more elaborate entertainment had been provided by the members of the profession in New York, a resolution was adopted recommending to all future committees that they dispense with all costly and extravagant entertainments. At the meeting in Charleston, for the first time, steps were taken to form a separate section for the reception and discussion of original scientific papers, which up to this time had been given very little attention on account of the urgency of matters concerning policy and organization.

In 1852 it was recommended that no medical college should send delegates to the Association: (1) unless it have six members on its faculty, (2) unless it give one course of instruction annually of not less than sixteen weeks in the fundamental sciences, and surgery and midwifery, and (3) unless it requires its candidates for graduation to be twenty-one years of age, to have studied three years with some respectable practitioner, to have attended two full courses of lectures, not in the same year, and to have shown by examination that they were qualified to practice. In these years, the Association had no means of enforcement of its rules and in many ways progress seemed very slow.

In the early part of the Civil War there were no meetings, but in 1863 the Committee on Medical Education reported that reproach and distrust of the medical profession was felt everywhere, and that the chief cause of weakness of the medical profession was lack of preliminary education.

Attendance at meetings continued to grow larger and the work became more complicated, so that questions that arose often could not be decided in open meeting. Therefore in 1873 a judicial council of twenty-one members was cre-

ated to take charge of and decide all questions of ethical or judicial character that might arise.

At the meeting in 1874 a plan of organization was discussed but it seemed impossible to get properly accredited delegates to take the time to do the work and make the decisions, and it was not until eight years later, at the meeting in Saint Paul, that effective steps were taken toward this end.

Up to 1882 the scientific papers had been published in the annual transactions and were essentially buried there. The annual membership dues at this time were \$3.00 and the income to the Association varied from \$2,000 to \$6,000. The American Medical Association at this time was described as an organization without funds, without a definite permanent membership, which held an annual mass meeting of delegates from various societies, often with no mutual bonds.

At the meeting in Saint Paul in 1882 it was estimated that the publication of a journal would require \$15,000 annually. It was decided to open the membership to all members of state and county societies, to increase the dues to \$5 annually, to secure a charter, to appoint a board of nine trustees, and to establish a weekly journal. In July, 1883, the first number of the *Journal of the American Medical Association* appeared. In 1897 the Association was incorporated in the State of Illinois.

The publication of the journal was of the greatest importance, but the organization was becoming so large and unwieldy that many difficulties arose at each meeting. There seemed to be no way of marshalling so huge a membership for the organization and conduct of affairs. Many attempts were made to reorganize, and a committee which was appointed in 1886 had attempted for years to get action on its report, which was finally laid on the table. In 1900 a committee consisting of Doctors McCormack, Foshay and Simmons again began working on a plan for revision of the constitution and by-laws. The outstanding feature of the new plan was the proposal that a Business Section should be constituted to be known as the House of Delegates, the membership of which was not to exceed 150, the members to be elected by the state societies only. From this time the association has remained an absolutely democratic organization.

William H. Welch, at the close of his presi-

dential address before the Association in 1910, said: "Among the organized forces for advancing the prosperity, the happiness, and the well being of the people of this country, the American Medical Association has an important part to play. We are justified in the confidence that, with the united support and loyalty of the profession, this association, broadly representative and standing for the best ideals of medical science and art and for professional and civic righteousness, will contribute a beneficent share to the working out of our national destiny."

Meetings held in 1882 and in 1901 were im-

portant from the standpoint of completing the organization of the national society.

The convocation held in 1901 at the Ryan Hotel in Saint Paul marked the reorganization of the American Medical Association. John F. Fulton was chairman of the local committee on arrangements.

A. W. Abbott of Minneapolis was the first delegate from the Minnesota State Medical Association to the House of Delegates of the American Medical Association.

Both the meeting held in 1882 and the one in 1901 were held in Saint Paul.

THE CENSORSHIP OF MEDICAL AND DENTAL ADVERTISING

One of the primary reasons for the establishment of the Council on Pharmacy and Chemistry of the American Medical Association in 1905 was the desire of the editor of *The Journal of the American Medical Association* for scientific advice concerning claims made by advertisers for proprietary remedies. The Board of Trustees of the American Medical Association give the fullest support to the Council by refusing space in the advertising pages of publications of the American Medical Association to advertisers of proprietary remedies who failed to meet the Council's requirements. With that support the Council has made its work and its name respected. The advertising pages of the publications of the American Medical Association and of the state medical journals that cooperate afford a striking contrast to the pages of the *British Medical Journal* and of the *Lancet* (London), which

exercise a so-called censorship without, however, having behind the censorship the type of scientific study and control represented by the Council on Pharmacy and Chemistry. The Council on Dental Therapeutics of the American Dental Association began its work with high ideals and with enthusiasm. In 1930 the trustees of the American Dental Association adopted a resolution to place the association squarely behind the Dental Council in its efforts. Then, at the midwinter session of this association, held in February, 1931, the board of trustees practically reversed its previous action, placing the business manager of the periodical in a position of judgment over the council and making him arbiter as to whether or not the criticisms of the council shall be referred to the manufacturer. Without the power of the trustees of the American Dental Association and the periodical of the association wholeheartedly behind its work, the Council on Dental Therapeutics will be ineffective. (*Jour. A. M. A.*, May 16, 1931, p. 1697.)

EXPERIENCES IN COUNTY MEDICAL ORGANIZATION*

THEODORE WIPRUD

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WHEN your genial Secretary, Dr. Meyerding, visited Milwaukee a few weeks ago and spoke to me about coming to St. Paul, he gave me explicit instructions as to what I should talk about. Among other things he wished me to emphasize our experiences in county medical organization and asked that I theorize as little as possible. I am afraid that Dr. Meyerding takes the same view of a discussion of medical organization that the scientist did of the law of gravity, when he said that a man who fell over a cliff did not break the law of gravity, he illustrated it. Dr. Meyerding evidently feels that illustration is more effective than theory. True as this may be, I will have to deviate a little from his expressed wishes. It is important, it seems to me, that we have a little background for a discussion of what we have been attempting to do in Milwaukee.

The growing importance of the county medical society has become increasingly evident. I was particularly impressed with this at the last session of the American Medical Association at Detroit because it seemed that every official who spoke, from the President down, emphasized that the county medical society was the most important cog in organized medicine.

Problems confronting medicine have become so complex and varied that it is small wonder that leaders in medicine are stunned by their magnitude. For any single organization or institution to give thorough consideration to modern medical problems in all their phases would be a practical impossibility. The American Medical Association does not presume to do such a thing, and perhaps wisely suggests that many problems are so interwoven with the social and economic fabric of our country that they cannot be isolated. There is, undoubtedly, a large measure of truth in this, but it is also true that the smallest unit of the American Medical Association—the county medical society—has it within its power to meet many local problems which in a

large measure make up the major difficulties. Conditions vary greatly in various sections of the country. What would be a solution for public health problems in Milwaukee might raise havoc in Cleveland. A program that would be approved in St. Paul wouldn't necessarily be acceptable to Minneapolis. It is evident then that the county medical society, which we may say is on the fighting line of medical practice, will undoubtedly have a great deal to do with the solution of many medical problems, and that no light responsibility rests on this unit of organized medicine.

To meet the demands which are made upon it the county medical society must be organized. This does not mean the loosely organized unit which has become so familiar, where infrequent scientific meetings comprise the sole activity. It means a unit that will not only improve its members scientifically, but will also assume its responsibility in other directions, not least of all to the community. To do this effectively a full-time secretary or a member who can give a large portion of his time to Society activities is needed. In large centers a part-time secretary has a thankless and difficult job. He cannot possibly do justice to the job entrusted to him and still give adequate attention to his practice.

In the last few years a number of societies have employed laymen as full-time secretaries. At the present time there are twelve or thirteen large cities where laymen are entrusted with the executive work. So far as I have been able to determine, these laymen have been successful, and the societies employing them are satisfied with the work carried on. Outstanding work has been done in Cleveland, Detroit, New York, Toledo, and other cities.

I have sensed some opposition to laymen as officers of medical societies; undoubtedly, there are legitimate reasons for this attitude. The objection may be raised that the layman's background is not such that he can get the medical man's point of view. And then, of course, he does not have medical training, and therefore cannot understand the more important phases of the practice of medicine. In view of these short-

*Talk given before the annual conference of secretaries of the component societies of the Minnesota State Medical Association, St. Paul, February 7, 1931.

comings, it is contended he cannot make the proper approach to the most important functions of a county medical society.

On the other hand, there are many who feel that a layman can soon acquire a proper background for medical organization if he is intelligent and adapted to the work. The lay secretary, they feel, has many advantages over a physician in a similar position. He can approach problems which the physician would find extremely difficult if not impossible to handle. No one can contend that he is seeking prestige or that he has "an axe to grind." He views the problems of the organization from a fresh point of view, and, if he is wise, will discharge his duties after careful thought and counsel with able medical men of his society. In approaching community problems he is particularly well fitted, and can speak for the physician as the physician could not speak for himself. As the business manager of the society he should be much superior to the physician.

It would be presumptuous of me to draw any conclusions from these points of view. Whatever the reaction is the layman will undoubtedly play an important part in medical activity in the future. If he is conscientious and able, the thinking medical man will give him the credit that is due him.

Some years ago Herbert Quick wrote a book. He called it "One Man's Life." I thought it a mighty good title for autobiography. In relating a little of my personal experience that title occurs to me as applicable. You will, of course, overlook my personal references, knowing that Dr. Meyerding is responsible for my making them. He wishes you to have a look at the background for the work which one executive officer of a county medical society is doing.

Most of the laymen who have become identified with medical organizations were either newspapermen or lawyers. I was neither. For a number of years I was in the banking business. That sounds a lot better than it is, as any young banker will tell you. While serving as cashier of a bank in Northern Wisconsin I was urged by two physicians to join their hospital as business manager. Although skeptical I joined them, and became intensely interested in their work, serving in every capacity that I could. In the course of some eight years with these men, I learned much about physicians and their problems, which is

now standing me in good stead. We enjoyed the satisfaction of building up an institution in that small community, which was unique and which served a large territory well.

Some years after joining these physicians I had occasion to speak at a medical meeting in which several adjoining county societies participated. It happened that the Secretary of the State Medical Society was there. He was impressed with my talk on collecting physicians' accounts and later published it in the state medical journal. As an indirect result of this incident I eventually joined the Medical Society of Milwaukee County.

A rather unusual situation existed in Milwaukee prior to the inauguration of their new program with a full-time secretary. Difficulties between the Health Department and the medical profession had multiplied with consequent ill feeling. Newspapers were none too friendly, and seldom favored the medical profession's view of any subject under discussion. This in itself was not unusual, but the fact that other organizations were the source of medical information and that a privately owned physicians' telephone exchange served over 200 physicians, was unusual. Officers of the Society had been disturbed by the possibilities of this telephone exchange under private management. While it was then being ethically operated, under different management it might be a source of great danger to the prestige of the medical profession of Milwaukee.

After careful deliberation, a survey of conditions existing in other cities was decided upon. The Academy of Medicine of Toledo had long sponsored a telephone exchange similar to the privately-owned one in Milwaukee, and employed a full-time secretary, and this was the first point of contact made by the officials of the Milwaukee Society. Following their survey of Toledo activities, the purchase of the privately-owned exchange, or what we call the Physicians' Service Bureau, was decided upon. The next step was to employ for the Bureau a manager who would act as secretary for the Society. This was done on October 1, 1929.

I was informed when I accepted the position with the Medical Society of Milwaukee County that all that would be expected of me the first year was to make the Bureau successful. It was soon discovered, however, that while the success of the Bureau was important, it was only a part of an ambitious program into which we just

naturally expanded. Problems kept arising on all sides, which clamored for attention and the Society was pressed to act. The result has been that more committee activities were carried on by our Society during the past year than ever before in its history. There were 85 meetings of the Directors and various committees in which 47 members participated. There could have been no more enthusiastic group. This is indicated by the minutes which reveal an average attendance of 90 per cent. This fine record was undoubtedly partly due to the wise action of the President in appointing small committees. Certainly small committees can accomplish more for a county medical society than large ones, since large committees are attended by about only half of their members.

One would suppose that considerable difficulty would have been experienced in getting men to serve actively on committees, as it seems traditional that committees in many county medical organizations are purely honorary, and that no work is expected of them. In recognition of the work done by our committees it must be said that they have not followed tradition or precedent. It is, of course, true that the Executive Secretary has often had to generate enthusiasm, and help committees keep clear of difficulties. In our scheme of organization the Executive Secretary is ex-officio member of all committees and acts as secretary—recording the minutes of all meetings. Sometimes the Executive Secretary's enthusiasm wanes; he becomes a bit wearied with the conflict of personalities and opinions, and is assailed with doubts and fears, but then these low moments are compensated for by the exhilaration which follows accomplishment.

What is of most importance in organization work as in other fields, is the result. A thousand committee meetings in a year would have no significance if nothing was accomplished. We feel in Milwaukee that for a first year program the results have been more than might have been expected. I am going to tell you briefly something about them and let you judge for yourselves. We might classify our accomplishments in two groups, those which may be called service to members and those which are service to the public.

I mentioned a moment ago the purchase of the Physicians' Service Bureau. This venture rep-

resented an investment of several thousand dollars, and on its financial success depended the first-year's program of the Society. The Bureau has proved exceptionally valuable to our members. To use the service a member must subscribe to the Bureau and pay a monthly fee, for which he is rendered twenty-four hour telephone service. The Bureau acts as a connecting link between the patient and the physician. We opened on November 1, 1929, with 220 members. At present we have 270. The equipment and personnel of the Bureau has been improved from time to time until at present we believe we have a very efficient service.

The Physicians' Service Bureau acts as an information bureau for the public. Calls are constantly received on every conceivable subject. Over 52,000 incoming and outgoing calls were handled last year. A third of these were inquiries. Most of them were for specialists. The procedure followed is to refer these inquirers back to their family physician. If they have no family physician, a classified list of specialists, approved by our Educational Committee, is referred to. Three names are given from which the inquirer makes his choice. When the next call is received in the same specialty the next three names are given. In other words the list is rotated. No information in regard to treatment is ever given by an operator.

Of course our scientific programs are an important feature. Attendance has so greatly increased that our officers have been much elated. An average attendance previous to last year was 100. This was increased to an average of 188. At four out of eight of our monthly meetings the attendance ran over 250.

This increase was partly due to the fine programs, the publicity given the meetings in our monthly publication, and the last-minute notices sent members. An added attraction was the social hour which followed each scientific meeting. This hour was given over to visiting and getting better acquainted. Buffet lunch was served during the social hour and physicians, being human, enjoyed this a great deal. We feel that this feature has helped to stimulate better feeling and understanding among our members.

One of the most interesting meetings held by the Society last year was devoted to medicine in its relation to journalism. The managing editor of one of our larger dailies spoke on "A

"Journalist Looks at Medicine," and an able member of our Society returned the compliment by giving the physician's view of journalism. It was an exciting and profitable evening. Both speakers expressed themselves frankly. We hope to have another meeting of this kind.

A number of unusual activities were sponsored by the Educational Committee. Among them were courses in public speaking and medical writing. The public speaking course, which was given by Professor Ewbank of the Public Speaking Department of the University of Wisconsin under the joint auspices of the University and the Medical Society, was a decided success. Over 70 members enrolled. The course in medical writing, which is still in progress under Dr. Morris Fishbein, has attracted wide and favorable comment. There are 45 members enrolled in this course which is also sponsored by the Society and the University.

A survey has been in progress during the past year under supervision of the Social Medicine and Medical Economics Committee. The first survey completed was that of charity work being done by members of the Society in Milwaukee County. The results of this survey were published in our monthly publication, and later in the Journal of the American Medical Association, where they attracted wide attention. We have received letters from all parts of the country in regard to this survey requesting more facts about our report. This report revealed that our physicians were doing charity work valued at a million and a half annually, over most of which they had no control. Our survey is continuing in all fields of medical practice, and just now we are particularly interested in our county institutions. We feel that much will be accomplished by this committee.

A collection service operated under the supervision of the Society but not by it, has been planned, and we expect that it will be opened on or about March first. Some societies have had unfortunate experiences with such a service. However, others have done well, particularly when carried on as an enterprise separate from the Society.

Among the social activities was the first summer outing which was held at one of the lake resorts near Milwaukee. Over two hundred members and their families attended this outing, which will undoubtedly become a yearly event.

Much service is rendered members by the Executive Secretary and his staff. Requests for information of all kinds are received daily. An employment service is conducted for the convenience of members. Those desiring positions with physicians are interviewed, and their applications filed. A number of secretaries have been placed in physicians' offices. The Executive Secretary of course calls on members, and on several occasions has appeared before hospital staffs to speak on Society activities.

Our monthly publication, *The Milwaukee Medical Times*, we believe has stimulated the interest of our membership. It has been developed from a four-page folder to a forty-page journal. Many favorable comments in regard to its contents and appearance have been encouraging to the editors. The *Times* has been self-sustaining.

County medical societies all over the country are taking a more active interest in public health activities. It is important that they should. In fact the leadership in this field should logically be assumed by organized medicine, otherwise changes will come to pass in the field of private practice over which the medical profession will have no control. Particularly is this true in the larger cities.

Among other activities in this field sponsored by the Milwaukee Society is the Speakers' Bureau which provides speakers for lay organizations. Since its organization a little over six months ago, increasing demands have been made upon it. Daily we receive calls for speakers. People are interested in medical and health subjects, and many favorable comments are made upon our speakers by the organizations before which they appear. Lists of subjects are sent out to clubs, parent-teacher organizations, and other groups. They select the subject about which they wish to hear, and learn the name of the physician who will speak on it afterward. This Bureau will become increasingly useful.

All press information is given out through the Executive Secretary's office. Every effort has been made to give the newspapers legitimate and reliable information, and they have responded splendidly.

One of the sore spots in our medical situation was the strained relationship between the Health Department and profession. When I first assumed my duties I had a talk with the Health Commissioner. While he was frankly skeptical as to the

result, he suggested an advisory committee of five members of the Society to meet with him monthly to consider problems of his department, which affect the medical profession. Results of this closer contact have been very satisfactory to all concerned. A better understanding and closer co-operation has been brought about. At this time no action is taken by the Health Department on any matter affecting the medical profession without submitting it for the approval of the Society. If I had time I should like to tell you of some of the results of this closer coöperation.

I will take the time to tell you of one co-operative activity. A joint campaign to eradicate diphtheria was sponsored by the Department and the Society last year. This at first was not successful because the Health Department immunized without charge, and the physician could not ask his patients to come to him, when free immunization was available. Later, however, the Health Department made toxin-antitoxin available free of charge to all physicians, and much was then accomplished.

Our Health Council, composed entirely of our members, was created last year. The Council was created for the purpose of developing a public health program in which the Society would assume leadership. More recently it was enlarged to include representatives of hospitals, and nurses' organizations, who will meet with the Council quarterly to discuss mutual problems. The first session of the enlarged group was held the first week of this month.

To touch on the subject of periodic physical examinations is to consider a subject which has been discussed to death. Despite this discussion leaders in medicine have seen little evidence that the medical profession by and large have been impressed with the importance of these examinations. It is evident to those giving the subject little thought that various official and non-official health bodies are pressing forward in preventive medicine, and that the trend of the times is toward prevention of disease. Unless the profession at large accepts this point of view and actually practices disease prevention, it would seem logical that the field will be left eventually to the various organizations who are urging preventive measures.

With this in mind, the Health Council is going to put forth a systematic effort to interest the rank and file of the profession in periodic phys-

ical examinations. First of all it will attempt to determine what comprises an adequate, minimum physical examination to be given by a general practitioner without laboratory and X-ray equipment available. Such an examination should be complete enough to reveal the necessity, if any, of extensive laboratory tests.

To prepare our physicians better for this work, practical postgraduate courses in diagnosis will be given. The first, which is to be given in March, will be an intensive course on the diagnosis of the chest diseases.

A number of other activities are considered by the Health Council for the coming year, and many problems have been presented to them for solution by various organizations in the public health field.

On a number of occasions the Society has taken active interest in public enterprises. During the past few months it has given free medical service to the Goodfellow House, a home sponsored by the Milwaukee Journal for homeless and unemployed men. No member has served more than once—an hour on a certain day, and although we have operated this service several weeks, there are still members available for this work.

Naturally I have just hit the high spots in our program. While there is much tangible evidence of progress, we feel that the intangible accomplishments have been of equal if not more importance. The prestige that the Society has gained in the past year because of its improved organization has placed us in a different and superior relation to all outside groups. Daily we are impressed with the value of this increased prestige. One evidence of it is shown by the constant seeking of advice and approval of the Society by organizations and individuals who never heretofore gave the Society consideration.

While an extensive program such as ours cannot be carried on by county societies in rural communities, it is surprising what they can do. Last summer I visited my old home, the village of Frederic, Wisconsin, which, as many of you know, is located about eighty miles north of St. Paul, in the northern part of Polk County. For a number of years the medical men in the county have belonged to a five-county medical society. Last summer they were considering an independent county society in Polk County. I took occasion on my visit to urge their separate organ-

ization and in a talk given to the society pointed out what they might accomplish in the public health field and in that of social medicine and medical economics.

Since my visit Polk County has its own society, and has as its secretary a layman who is a business manager for a group of physicians at Frederic. The local paper, which I receive, indicates that they have a live society indeed. Regular monthly meetings have been excellently attended, and much interest and activity have been manifest in public health problems. Many economic problems, I observe, have been threshed out to the mutual advantage of every physician. What is most pleasant to record, there is more harmony among the medical profession than there has ever been in that part of the country. So it is apparent that whether the county society is large or small, organization can be just as effectively promoted to meet demands made upon it.

Medical men are liable to become soured on conditions which exist in the medical field today, and vent their feelings on the public. They are

hardly to be blamed for remonstrating, particularly with those who know little about medicine yet contribute scathing essays on medical practice to the leading periodicals of the county. Medical men might well assume the attitude of the Confederate soldier who was trudging through the mud. Suction of the wet and sticky mud made going slow and difficult. An officer observing that the soldier was lagging rode up and bawled: "What is the matter, you? Move along." The soldier looked up in anger and despair and said: "If I ever love another country, damn me."

The bitter and antagonistic attitude of some medical men, however, does not seem justified. Problems which confront medicine may best be approached in a friendly and sympathetic attitude. Of course, this does not mean a spineless attitude.

As in all great organization activities, vision is needed in the medical field today. Better organization, a unity of purpose, and a vision which sees beyond the present and includes the possibilities of the future are essential. If the county society meets these requisites it will serve its membership and its community in full measure.

A POINT OF VIEW IN MEDICINE

E. C. HARTLEY, M.D.
Saint Paul

HOWEVER much the physician of today may desire to sit still, the forces directed upon him from within his profession and from outside it are too active for repose. To remain passive in the midst of this active play of opinion seems to him to press passivity to the point of stupidity. He cannot meditate on an alternative, as did Pascal and find a virtue there: "I have often said that all the troubles of man come from his not knowing how to sit still. . . . So passes the whole of life. We combat obstacles in order to get repose, and, when got, the repose is insupportable; for we think either of the troubles we have, or of those that threaten us; and even if we felt safe, on every side ennui would of its own accord spring up from the depths of the heart, where it is rooted by nature, and would fill the mind with its venom."

The physician must be a stranger to ennui even though nature had made him a native to that pleasant state. Into his profession have been thrown an innumerable series of new ideas, new things, new tendencies—a witches' cauldron boiling up unceasingly new and wider demands upon him, new responsibilities. . . . He looks on in astonishment and in fear, for he rushes to an unknown destination *under acceleration*.

He is left restless and uncertain. Yet the nature of his duties and responsibilities demands a state of mind as far removed from those qualities as is possible. He may be restless with eagerness to learn, and the uncertainty of an active curiosity may well be his, but the gratuitous unrest that goes with an ambiguous position in society is not desirable. It is a distraction. The demands which society puts upon medicine today are in direct proportion to the promises made by medicine. These promises have a proven social value so great that they must be delivered, and it is in the very process of delivering these promises that distraction has entered. That a certain dissatisfaction results is to be expected.

In this equivocal position a respect for himself, for his profession, and for the public—his patients—urges the physician to define his position, his purposes, his relations.

He may well begin by a quantitative estimation of his profession in society. The results of even a casual review will astonish him by their dimensions, and reinforce his desire for an orientation which, even though it may well fail to define accurately his position, yet may at least indicate the direction in which he is moving.

He will learn that there are approximately 1,020,000 people who are ministering in one way or another to the care of the sick and the promotion of health. Of this number more than half are hospital attendants and nurses. Physicians and surgeons number 147,000; dentists 64,500; and retail drug dealers 80,000.

At the end of 1929 there were 6,665 hospitals averaging about 150 beds each; of these hospitals, 1,795 were controlled by some governmental unit, from county to national, and 4,870 were under private agencies, chiefly church, individual, or association. The bed capacity and the average number of patients in the government hospitals are almost double those in the private hospitals. The average number of patients in hospitals in 1923 was 553,133, and in 1929 this had grown to 726,766. Of this total, 395,407 were occupying a bed because of some mental or nervous disturbance.

Computations of the cost of disease runs into vast sums—for services of hospitals, nurses, dentists, physicians, and non-medical practitioners the figure is \$2,000,000,000. For medicines it is estimated that we spend \$700,000,000 annually. Of this total, according to value at factory, 50.3 per cent goes for patent and proprietary medicine for sale to the general public, 28.8 per cent for tablets, pills, powders, and miscellaneous products, including medicines for self-treatment and those sold through prescription. Ethical specialties dispensed upon prescription took 15.3 per cent, while the remainder, 5.5 per cent, went for biological products. While this sum, amounting to \$6.33 per capita, was being spent for drugs, only \$0.59 per capita was expended for public health work through local, state, and federal agencies.

In an Indiana county, a recent survey of the

medical facilities, to be later incorporated in the report of the American Medical Association's Committee on the Cost of Medical Care, shows that the per capita expenditure was \$21. Of this sum less than one-third was spent for medical advice and aid, while more than one-third was spent on drugs and medicines, of which, however, only 10 per cent was dispensed by physicians. The county has 31 physicians, 5 "active" chiropractors, and 6 Christian Science practitioners. Less than half the children in the county have been vaccinated, and less than 5 per cent of the school children under 10 years of age have been immunized against diphtheria. The county spends 1.3 per cent of its income on public health, that being least of all items on its budget.

Most agencies in the field of health may be classed broadly as official and as private or non-official agencies. The official agencies may be grouped under the various administrative units in our government. In the federal government itself there are twenty to thirty agencies doing some kind of public health work. The most important of these is the U. S. Public Health Service. The work of this Service is carried on under seven divisions, each of which is quite extensive and more or less of a unit in itself. The Children's Bureau of the Department of Labor carries on investigations in infant and maternal mortality and in children's diseases. This Bureau also administered the Maternity and Infancy Act. In the Census Bureau the Division of Vital Statistics carries on a work directly related to health. In the Department of Agriculture, the Bureau of Chemistry administers the Pure Food and Drug Act. The Bureau of Entomology studies the effects of insects on the health of man. In this same Department other bureaus, such as the Bureau of Biological Surveys, carry on activities which have some relation to public health functions. It is in this Department also in which the institution of County Agents and Home Demonstration Agencies, numbering about 5,000 persons, centers. They give an appreciable amount of attention to rural health work. In the Department of the Interior the Bureau of Mines is concerned with the health and safety of miners. The Bureau of Indian Affairs maintains a corps of almost 200 physicians and 86 hospitals for the care of Indians. The Bureau of Education gives special attention to school hygiene and physical education and also cares for the health

of the natives of Alaska. In the State Department, the Consular Service gives weekly reports of sanitary and health conditions of various ports and issues bills of health to vessels leaving for the United States. In the Department of Justice, the Superintendent of Prisons is charged with the care and health of the federal prisoners.

The principle of federal subsidy may be mentioned here since the subsidy granted to the states under the Maternity and Infancy Act aroused such a protest from physicians on the basis of pernicious effects of federal subsidies. It is interesting to note that for the fiscal year of 1924 approximately \$145,000,000 was issued to the states as federal subsidy, and of this amount less than \$1,000,000 was used for all kinds of public health work.

Under state official agencies, there are the State Departments of Health in each state, many of which maintain extensive services; for example, diagnostic laboratory services wherein millions of specimens are examined at state expense, most of these coming from physicians. In the laboratory of the New York State Department of Health there is a staff of over 200. Many states manufacture and distribute biological products such as smallpox vaccine, diphtheria antitoxin, antirabic vaccine, et cetera. They also maintain divisions for the investigation and control of preventable diseases, and for control of the sanitary aspect of water and sewerage systems and of regulating the production and distribution of milk. State Departments carry on in one form or another an educational program, chiefly by way of pamphlets issued free of charge to the people of the state. Practically all of the larger municipalities of the country maintain health departments. These frequently maintain departments for anti-tuberculosis work or venereal disease control; most of them also maintain diagnostic laboratories.

There is of late years an increasing tendency toward the establishment of county departments of health as being the logical unit for the control of contagious disease within the state. It is interesting to note that of the 3,076 counties in the United States in 1929, 1,794, or 58.3 per cent, have one or more hospitals; counties having only special Federal or State institutions are not included.

As this panorama of agencies unfolds before

him, the physician constantly reminds himself that they all represent governmental efforts to bring about a universal realization of the promises of health. He reflects that in many of these efforts his services and coöperation are still earnestly solicited, while in others, such as in problems of water supply, sewage disposal, drainage, etc., the important rôle he once played remains chiefly as an historical interest—obliterated by the engineering drama now filling the stage upon which he once played his prophetic evangelical part.

Other agencies, however, are similarly engaged in this universal realization of the promises of health. These are the private or non-official agencies. They are independent. The harmony with which they play their part with the medical profession and official agencies depends upon the purpose and policy of the group, and as such is a variable. Most of them are quite specialized, as is indicated by their names. The mention of some of these groups will be sufficient indication of the quantitative part they now play in public health: The American Public Health Association, The American Red Cross, The American Association for Medical Progress, The American Child Health Association, The National Tuberculosis Association, The American Social Hygiene Association, The National Committee for Mental Hygiene, The American Society for the Control of Cancer, The American Heart Association, The National Society for the Prevention of Blindness, The National Organization for Public Health Nursing; there are the "foundations"—the Rockefeller Foundation, the Milbank Memorial Fund, the Commonwealth Fund, the Duke Endowment, the Couzens and the Rosenwald Funds. With none of these groups has organized medicine coöperated, and none has been taken over by an official agency, although some of their functions have been assumed by official groups. Dr. S. W. Welch, State Health Officer of Alabama, in 1924, said of this group: "Successful unofficial leadership, which wrests from the official agency of health duties legally conferred upon it, can prove only a menace to our Government; and this is no less true when the unofficial leadership enjoys the uttermost confidence of the people and is rich in funds accruing from the benevolence of the people. Profound altruism and devotion to the cause of pub-

lic welfare on the part of misdirected leadership does not render it benign, nor does a leadership based upon sound scientific principles prove an unmixed blessing if it builds strong human bodies capable of self-control and at the same time breaks down our feeble human attempt to govern ourselves collectively."

If there is a disagreement between these two great types of agencies, the physician finds it difficult to arouse himself to any active partisanship. From them he receives pleas, orders, suggestions, and solicitations for coöperation in routine established matters, in new health projects, in new methods, in "drives," in surveys, and in educational campaigns. He is cajoled, praised, threatened, or ignored.

Irritated somewhat, and uncertain, he turns to his profession. Unquestionably it has, in a century or less, pulled itself out of a welter of ignorance and superstition of an amazing depth; it has wrenched itself loose from all associations with the past, and, on a road of its own making reached the position it now occupies. It has made its own schools and teaching methods and has devised means for their improvement and for defending their standards against those who by digressions and compromise tried to lower them.

He finds that for the United States there are 126.6 physicians for each 100,000 population. Two countries approach this number, Austria with 113.9, and Great Britain with 111.4. France has 58.9, Norway has 56.9, Belgium 53.8, Sweden 34.6; last comes Persia with 2.5.

There are in the United States 76 medical colleges, of which 20 are in three states, New York, Pennsylvania, and Illinois. These 76 colleges graduate annually 4,565, of which only 204 are women, and of which 3,211 have either an A.B. or a B.S. degree in addition to their M.D. degree. There is an annual enrollment of 21,597 students. The number of medical colleges has decreased greatly in the past twenty years. From a total of 100 in 1880, the number reached its peak of 162 in 1906. The decline was abrupt until 1915, when 96 colleges remained. The present number represents the results of a more gradual elimination, largely through the merger of two or more schools into one.

These figures are taken from the 1930 report of the Council on Medical Education and Hos-

pitals of the American Medical Association, in whose Journal they appear. The Council was organized in 1904, and since 1905 has published its annual report in the Journal of the Association. Commenting editorially upon the work of the Council, the Journal remarks that "medical education has shown a tremendous improvement over conditions existing in 1900. . . . Early in its work the Council found that no national supervision or control had ever been placed over either general or professional education, since the constitution of the United States had left such matters to the state governments. With a few exceptions also it was found that the states had not assumed such authority, nor had any supervision or control been provided for educational institutions after they had been chartered. Consequently, the medical schools were multiplied out of all proportion to the increase in population, and by 1900 the United States had about half of the world's supply."

The physician's pride in the feat of his profession raising itself by its own boot-straps is but little diminished by the reflection that it is a constant aim of all groups and classes to do likewise. Prerequisites, ritual, technic, manner—all are in constant use to lend not only worth but exclusiveness and distinction to groups and classes. But when Mencken speaks of "the aloof, philosophical air of a dermatologist contemplating an eczema," he refers to a professional manner which has languished of late; it requires something stronger than "manner" to withstand the winds of publicity set in motion by all the agencies now so actively engaged in helping the cause of health. Increased educational standards as well as a strengthening of organization within the profession, as they become more apparent to him, may seem to the physician as twice blessed. Yet he wonders at the apathetic manner in which the public so often receives his efforts. Can it be that the higher education, as an *ipso facto* vehicle for distinction has become so common as to have lost its magic? Here, however, he is led into questions of educational values as elusive as the orientation for which his search was begun. He can only drop the question with regret.

There remains the content of modern medicine, the nature and quality of its promises. Are they absolute, relative, or only potential—realiz-

able, perhaps, through the operation of some administrative machine of which he shall be a part? Two qualities characterize these promises at the very start, their number and their newness; it follows almost as a corollary that the promises shall be colored, in some degree, by the attributes of newness anywhere; namely, a certain diffidence and an awkwardness in delivery.

The absolute values in modern medical promises are the prevention and treatment of diphtheria, together with an accurate method of testing for individual susceptibility, a method for preventing smallpox, typhoid fever, yellow fever, hookworm, and malaria. A whole series of diseases have become relatively subject to control; this includes tuberculosis, measles, infantile paralysis, scarlet fever, diabetes, pernicious anemia, rickets, the intestinal disorders of infancy, the toxemias and infections of the puerperal state, a considerable number of primarily surgical conditions for which specific surgical procedures will bring relief, a series of endocrine disturbances for which specific glandular therapy is now available. Palliative measures of value are now at hand which even in recent years were unknown; here may be included new drugs and refinements in the manufacture of old ones—the new local anesthetics, analgesics, and sedatives, a whole new series of drugs have become available for intravenous use, thus increasing their potency in emergencies, great refinements in the treatment of fractures, of burns, of heart disease. Here, also, must be included extensive new diagnostic procedures and refinements in old methods; the X-ray, the electrocardiograph, methods for determining the metabolic rate, the significance of changes in the blood cells, a practically new science of blood chemistry. There is a tendency away from surgery as a field in itself towards renewed interest in medical treatment, toward functional study, toward relationships between organs, and of organs to constitution. There has been a tremendous expansion of content and promise in the field of mental diseases and the neuroses, with mental hygiene as an attendant development.

The medical literature already written concerning these subjects is extensive. The newcomer, the occasional wanderer therein quickly loses himself. Yet the physician knows he must either become familiar with its maze, or ration-

alize himself into contentment outside. Possibly, he feels, it is this tremendous scope and newness of medicine which has contributed as much as has a lack of organization to a certain slowness in bringing the promises to realization on a universal scale. Indeed, this point often enters into discussions of modern medicine. Dewey says: "Ideas formed in the days when it was reasonably possible for a man who had been studiously through the schools to master the sum total of learning too largely control the schools of today."

An idea, expressed by H. H. Moore in his book, "American Medicine and the People's Health," recurs again and again: "The spectacle of human beings enduring suffering and death from diseases which may readily be prevented will appear rather annoying to a citizen of the twenty-fifth century reading for the first time the history of the present age." This, he believes, is due to a lack of adjustment somewhere in the recent evolution of medicine and he considers it as "an example, perhaps, of a social phenomenon, which William F. Ogburn has called 'cultural lag.'" This lag, he believes, expresses itself in the comparatively unorganized condition of the majority of physicians. There is a lag in the development of machinery for the utilization of the promises of medicine. This lack of coordination, however, the physician knows is felt. President Hoover's White House Conference on Child Health is distinctly an effort at coordination.

Numerous specific examples of a slowness in bringing health promises to general use occur to the physician and may be called expressions of "cultural lag" with as much accuracy as they might be termed neglect. Thus, vaccination against smallpox was known even before the time of Jenner (1798), but it is far from being universally practiced today. It was ten years after Behring's discovery of diphtheria antitoxin before our physicians generally made use of it, and even today, with a means for preventing diphtheria at hand, the disease still kills hundreds of children yearly. There was a similar slowness in adopting Pasteur's inoculations against rabies. Sir Humphry Rolleston observes that "unfortunately the art of healing may lag long behind the scientific milestones." He cites the inertia following Harvey's discovery of the circulation of the blood; blood transfusion, though

done in the seventeenth century, did not become routine until the Great War; Christopher Wren originated the intravenous injection of drugs, but the general use of this method did not come until 1910, with Ehrlich's arsphenamine discovery; Davy discovered nitrous oxide gas in 1799 and its use as an anesthetic was demonstrated the following year at Guy's Hospital; but the American Lang (1842), Wells (1845), and Morton (1946), with their use of ether, first brought anesthesia into general use. It was forty years after James Lind showed how scurvy could be prevented that the British Navy put his simple remedy into use and banished this ancient scourge. The same lag was apparent after Lister first demonstrated his antiseptic method in surgery. The lag in the fight against puerperal (childbed) fever is a classic example of the medical prophet without honor—even in his own country. The physician's regret at this failing in his profession is not relieved by a similar, and perhaps equally grievous, lag in law, in politics, or in education.

Here again, as at other points in his speculations, the physician must consider the effect of mass. Before he can practice his art, he must somehow give movement to his knowledge; and the difficulty of this effort is in proportion to the mass of knowledge he has accumulated. This explains, in part, the facility with which physicians of even twenty-five years ago practiced their art, the time they had to impress themselves upon a world ready and susceptible to the sympathy and good cheer which sprang, perforce, from minds whose relative dearth of scientific content led them to embrace a priestly instrument as preferable to that of the charlatans'. The physician by no means intends to deride the part of sympathy in the presence of suffering; its rôle, however, while still important, must be filled by a lesser portion of the physician's mind now taken up more and more with critical selection from the range of diagnostic and treatment possibilities before him. Yet much of the criticism directed against him today is less concerned with his mastery of the present content of medicine than it is with his departure from the pleasant, simple ways of the past.

The scope and complexity of medicine have produced another result for which the profession is criticized, no doubt justly. Doctors are said

to protect one another, that this mutual *laissez faire* attitude in the presence of mistakes on the part of their colleagues is an anti-social act. The validity of this criticism becomes less certain when this fact of the mass of medical knowledge is realized. To condemn a doctor for slowness in absorbing it, for slowness in giving it movement, for inaccuracy in interpretation, is a difficult thing to do without qualifications; even to detect dishonesty in its use or wilful neglect in its execution is by no means as simple as it may seem. Indeed, the public, in their enthusiastic support of follies in the field of health are guilty of a worse error, since their action reverts to the use of magic and superstition and a discarding of method in the choice of means.

The physician must revert again to education in spite of his ignorance, since the term has appropriated every aspect of intellectual method.

Dewey speaks of the confusion and distraction of modern education in which almost everything "finds its way into 'courses' and textbooks." The task, he says, is to reduce and simplify the course of study. He would cease inculcating information in quantity and offer instead a development of an "independent method of thought and inquiry" by a full treatment of a limited number of typical groups of material. Of education in science he says: "The essentials of scientific method, of a certain way of looking at things and seeking and weighing evidence, in short the development of judgment, are swamped in the acquisition of information, all the items of which stand on the same level and are equally subject to belief or unbelief. The mind is left more ready to seek for signs and wonders, and more ready to grasp at and swallow whatever is presented in print. The mere mass of what is offered daily, monthly, and yearly, overpowers independent judgment and creates a state of intellectual impotence; the mind is oppressed rather than enlightened." Here, he says, signs of improvement may now be found in professional education which "simplify not by arbitrary limitation to traditional portions of the field, but by emphasis upon subject matter that is strategic in developing command of method." He finds failure in "fundamental intellectual achievement" due chiefly to two traits: "undue deference to anyone who obtains popular prestige as an 'authority' in any field, and an accompanying

credulity of mind that indiscriminately accepts for a time anything offered, only to turn soon to some newer topic." The physician readily discovers these traits not only in himself and in his profession, but with especial clearness in the recent efforts of organized medicine to educate the public in matters of health. To a large extent, many offsprings of this effort as reflected in individual and social response, often made with a certain aplomb as having a sound "scientific" basis, are the opposite of scientific. In his *Grammar of Science*, Karl Pearson says, "The classification of facts and the formation of absolute judgment upon the basis of this classification—judgments independent of the idiosyncrasies of the individual mind—essentially sum up the *aim and method of modern science*." He describes the function of science as "the classification of facts, the recognition of their sequence and relative significance."

At times, when the physician sees to what an extent special moral and commercial connotations are mixed with the promises of health he wonders how the contamination is achieved with so little comment. His reaction to a recent article in Harper's on the superstitions of southern negroes in obstetrical matters was to reflect how largely a similar folly possesses and guides many college graduates in northern white people. He turns now to another statement of Pearson's, "Modern science, as training the mind to an exact and impartial analysis of facts, is an education specially fitted to promote sound citizenship."

At once, it seems, the whole question becomes simpler—not of solution, perhaps, but of description. It is no longer a vague, restless disturbance, but a definite condition having definite causes and immediate results quite reasonable in the sequence as it has so far revealed itself.

The physician feels that his desire for orientation is shared by educators, statesmen, sociologists, and economists—by everyone, indeed, who is trying to understand those swirls and eddies which are caused by the sudden influx of new ideas and new forces into the quiet pool of society: not the least of the forces involved being the inertia of society itself, now grown to vast proportions through mere quantitative increase in bulk. He recalls Osler's statement that the introduction of quinine was one of the most power-

ful forces in our present civilization.

With all the others, then, the physician feels that he must turn to the task of arranging his material, of developing skill in the use of the scientific method, of clarifying and simplifying the promises of health. If he finds that others are using the same tools in the solution of their difficulties he feels that there will be less and less need for the growth or even existence of many of those large intermediary groups whose interpretive and administrative functions now seem so necessary. Patience, if not evoked, is imposed by circumstances, and as such becomes a burden and a punishment rather than an aid.

Here, then, is a field in which his utmost industry may be employed. If society will understand his task they will make it easier by not requiring him to defend it from the intrusion of

methods which, as they now command no respect from his own profession, will then inspire none from society upon whose ignorance they now maintain their saprophytic life.

Havelock Ellis, in discussing some observations of Jules de Gaultier on the artist, said: "If he seeks to mix himself up with the passions of the crowd, if his work shows the desire to prove anything, he thereby neglects the creation of beauty. Necessarily so, for he excites a state of combativity, he sets up moral, political, and social values, all having relation to biological needs and the possessive instinct, the most violent of ferments." The physician feels himself respond to this view. Like the artist, he hopes that "by revealing the spectacular character of reality he restores the serenity of its innocence."

625 LOWRY MEDICAL ARTS BLDG.

BISMUTH IN THE TREATMENT OF SYPHILIS

In the selection of a bismuth preparation the different factors come up as to whether one wants a soluble or an insoluble preparation, how often the dosage is going to be given, and how rapidly it is desired to have the preparation absorbed. The average effective bismuth preparation should contain from 0.03 to 0.2 Gm. of metallic bismuth in a dose and a course of therapy lasting eight to ten weeks should probably amount to from 0.6 to 2 Gm. of metallic bismuth. The Council on Pharmacy and Chemistry has gone on record as opposed to intravenous bismuth therapy. The therapeutic dose is too close to the toxic dose; therefore one is limited to intramuscular injections. If one is desirous of a preparation with comparatively rapid ab-

sorption and one that probably should be given twice a week, one might employ the thio-bismol in a dose of 0.2 Gm. (metallic bismuth, 0.075 Gm. per dose); or the potassium sodium bismuth tartrate, aqueous solution, usually with a dose of 0.1 Gm. (metallic bismuth, 0.04 Gm. per dose). These soluble preparations should be given twice a week and are hardly suitable for general office practice. When one administration per week is feasible only, one is forced back on the use of a soluble preparation suspended in oil, or an insoluble salt suspended in oil. Recently, there has been a turn to the use of liposoluble bismuth preparations; there is a claim that these combine the good points of both the soluble and the insoluble salt, but it is too early to answer this question definitely. (Jour. A. M. A., May 16, 1931, p. 1721.)

THE INSTITUTIONAL CARE OF TUBERCULOSIS*

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THE approach to a consideration of the function of the modern sanatorium in the tuberculosis program must recognize first the background, historical and social, out of which the institution has evolved. Secondly, we must evaluate the sanatorium's success in adjusting itself to new conditions as experience and research guides us ever closer to the ultimate control of tuberculosis.

While the hospital is a human institution as old as recorded history, in its modern setting it is one of the later developments following the intellectual revival in Europe. During the eighteenth century, the hospital became of recognized importance in the larger cities. During the middle of the last century, the first special hospital for the cure of tuberculosis was put into operation. At a time when tuberculosis caused one-seventh of all the deaths in Germany, Herman Brehmer in his doctorate thesis of 1853 maintained that tuberculosis was a curable disease, basing his conclusions upon the frequent observation of healed lesions at autopsy. Brehmer established the first successful sanatorium in the world in 1859.

Because of the many and confusing symptoms of pulmonary tuberculosis as shown by percussion, auscultation, palpation, and by the surgical forms of the infection, this disease early stimulated the greatest clinicians in the profession to its study. The special hospitals for the tuberculous gave the followers of Bayle, Laennec, Villemin, and Auenbrugger an opportunity to apply their teachings relative to diagnosis and physical findings. Treatment was given more prominence in the physician's attitude to the patient following the advent of the special hospital and still more as a result of the discovery of the tubercle bacillus by Koch in 1882.

There are few, if any diseases, that have caused nearly the number of tragedies in family life as tuberculosis. For many centuries and in all nations this wasting disease has been rather

definitely identified and feared. There is every reason then that as soon as men suspected it possible to discover the nature of tuberculosis many workers would become interested in the search for more knowledge concerning this devastating disease about which a vast field of information suddenly became available for the physician's use. Because of the marked nutritional disturbances and its chronicity, the clinical symptoms were given much attention, while other phases of the problem were allowed to remain unnoticed.

One of the early misfortunes in the institutional care of tuberculosis was the change of the tuberculosis hospital into a sanatorium. After some twenty years, we are now trying to salvage as much as possible of the sanatoria that tuberculosis hospitals may survive. There is a drift even now towards the inclusion of the tuberculosis patient in the general hospital, and it is conceded that with the establishment of a proper technic there could be no public health opposition.

The institutionalization of wards of the State while of ancient origin became prevalent during the early part of the last century and grew rapidly until the period following the World War. The State has attempted in the past to institutionalize its penal, domiciliary and therapeutic dependents. Because of the economic burden imposed upon the taxpayers by this increased load, the necessity of limiting the multiplication of institutions has become apparent.

The preventorium as an adjunct to the sanatorium in the care of the tuberculous can be largely, if not totally, eliminated by adequate supervision by the public health nurse of the child in the home. Many of the cases of adult tuberculosis where the individual is mentally, economically, and emotionally equipped to cooperate with the family physician and the field agencies can be given at least as effective care outside the sanatorium as can be given inside. Before these changes can be adequately established, the field service must collaborate with the sanatorium.

*Presented before the Lymanhurst Medical Staff on December 11, 1930.

physicians in turning over under their supervision the therapy of selected cases among the tuberculous to the family physician.

There are three individuals who should be concerned in the care of the tuberculous: the family physician, the epidemiologist, and the sanatorium physician. The maximum social results in terms of prevention and cure will not be accomplished until these three are brought together with a sustained medical interest and responsibility throughout the period of their medical supervision.

Early in sanatorium work in this country, there was a very definite and a very unfortunate separation of the two fundamental elements which together should compose the tuberculosis hospital.

One school espoused the clinical importance of the sanatorium and insisted that the institution served no other purpose than the treatment of the individual case. This school was unconsciously attempting to induce the governmental unit creating and supporting the institution to foster "State Medicine."

Considerable evidence in support of this statement has developed from time to time in many sanatoria. However, the return of the sanatoria to a hospital status has made it possible for the physician in tuberculosis work to cooperate with the general practitioners and the specialists. He now becomes one of a partnership whose business it is to care for the sick.

The second group considered that the institution should be primarily for the removal of the infected and infecting individual from the home, and that the institution was created primarily to serve a purpose in preventive medicine.

The clinical point of view won out, and for twenty years preventive medicine has been pleading, usually to locked doors and deaf ears, to apply the same epidemiological methods to tuberculosis that have proven so effective in the control of most of our infectious diseases.

One of the most hopeful tendencies at this time is that during the past few years there has been demonstrated in many quarters an expression of friendliness between these two opposing groups, an apparent desire to get together in the proper management of this problem of tuberculosis control. We now concede that from a public health point of view the sanatorium is an ad-

junct to the epidemiologist primarily, and to the clinician secondarily. The modern institution for this reason cannot operate successfully and effectively without coordinating its clinical work with its field service. A well-balanced sanatorium must function in the field as effectively as it does at the bedside in the institution. The final coordination of these two activities will accomplish what either alone can never do.

The sanatorium, as its name implies, has unfortunately divorced itself from the hospital, and now for various reasons it requires a hospital status to bring to its tuberculous patients the advantages of modern medicine. Where isolation was once a requirement, consultants in many specialties are now sought. Where one doctor was required to serve as a care taker, now a corps of well trained physicians are essential. Where fresh air was given afar off to insure purity, purified and conditioned air can be obtained at any place desired. Sunshine can be given twenty-four hours daily. Altitude and season are of little importance so long as you have a lamp and a wall plug.

It was but a short time ago, and some of the textbooks still inform us that in the selection of a sanatorium site one must choose protection from the prevailing winds, and it must be located on sandy well drained soil removed from congested districts where the atmosphere might be charged with dust. These elements considered of most importance but fifteen years ago are very distinctly of secondary importance today.

Our sick tuberculous patients are not in search of seclusion or a home. They want treatment and maximum recovery in the shortest possible time. To render the patient the service required, we must vacate the sanatorium and enter the tuberculosis hospital.

The evolution of the hospital since the days when the sick were laid in the precincts of the temples of Greece and Egypt had not changed greatly prior to the middle of the nineteenth century, when the etiology of disease was attracting the attention of the medical profession, and the special hospital was emerging from the old general hospital. The modern hospital, while elegant in exterior, furnishings, and equipment, has not in some instances changed greatly from the general hospital of a century ago.

The most outstanding similarity is perhaps the

lack of a contagious technic. With the development of the special services in the modern hospital, we have an aseptic technic in the operating and delivery rooms and a special technic for the contagious ward. We have no protective routine for the new or unknown case that is as dangerous and possibly more so than the one diagnosed and under treatment.

The tuberculosis sanatorium is a development of the specialization in hospital care of the sick. There has been much added to the original sanatorium, but like the modern hospital it has also failed to establish a protecting technic. A nurse trained in contagious technic would be unable to work in the present day sanatorium because the contagiousness of tuberculosis is not recognized in the set-up of the institution.

The educational and training facilities in the sanatorium have been neglected. Only recently have some of the sanatoria located near medical centers developed in a moderate way the training possibilities within their possession. The sanatorium too often has considered itself a closed staff and its nursing service of secondary importance. Every sanatorium should offer training to pupil nurses in both bedside care and field nursing. In a general way the ex-patient, physician or nurse should not be employed in sanatorium work, since they have made an adjustment to the type of institutional work which will make the fewest demands upon their time and energy. Efficient medical and nursing care calls for energetic and physically strong workers, who are interested in developing and maintaining an association among patients and employees that will in no way endanger either.

The staff of the sanatorium too often isolate themselves from the profession and complain about the lack of the coöperation they receive. The tuberculosis hospital should encourage clerkships and junior staff members whose residence is a part of their preparation for practice. This contact with the profession will benefit the sanatorium, the profession, and most of all the medical staff of the sanatorium.

A fundamental change in sanatorium administration involves the extension of a contagious technic throughout the institution. The tuberculosis sanatorium should be remodeled. It must treat rather than tolerate sick people. It must train many of them to live as "carrier cases" in their communities and homes and to live so as

not to endanger others. The tuberculosis hospital must be staffed by highly trained physicians and nurses trained both in treatment and preventive medicine. The field work must be recognized of as much importance as the hospital. There can be no rest hours, and there can be no pension positions for part-time employment in these services.

The educational facilities offered patients in the sanatorium of the past have been altogether inadequate from an epidemiological point of view. The occasional talk by the physician and the cursory reading of health books and journals by the patients does not often aid in the development of new health habits, unless they can be repeated and rehearsed in the institution and continued under nursing supervision after discharge.

We acknowledge the fact that there is a considerable variation in the virulence of tubercle bacilli, yet our attempt to educate the patient to the danger of reinfecting himself with a more virulent strain of the organism is never considered. The sanatorium frequently employs the positive-sputum patient, sometimes even as a food handler. The danger of reinfecting a group of patients is more serious possibly than giving the initial infection to a group of well people.

We do not know just what the danger may be as a result of this type of contact, but we know that it has possibilities that should not be ignored. All dishes should be sterilized and each patient should be taught to carry out as far as possible a contagious technic in his contact with fellow patients. The criticism at once arises that we would make neurasthenics out of our patients. Possibly, but more certainly we shall make them safe, and we shall increase their chances for recovery.

Most patients have a determination to recover which too often is interpreted as being the optimism of the tuberculous. This "will to recover" is a power in the hands of the physician. Education and information in a very great measure replaces discipline. The "will to recover" is seldom emphasized, yet it, rather than contentment, is and must remain the greatest single aid to every hospitalized man or woman who is ill with pulmonary tuberculosis. The sanatorium was created to provide for the patient an environment in which contentment was a dominant factor. The tuberculosis hospital's interest in the

patient's attitude centers upon his "will to recover."

CONCLUSIONS

The tuberculosis hospital is a teaching, a therapeutic, and a prophylactic institution, while the sanatorium has been and still remains largely a domiciliary and a therapeutic institution.

The training of patients to live outside of the institution without endangering others is a public health necessity which if carefully developed would result in the discharge of many cases now occupying hospital beds while receiving domiciliary care.

The family physician, the institutional physician, and the epidemiologist working together will bring as good treatment to the tuberculous as they have received in the past from the institutional physician alone. Through this coordinated medical effort material progress will be made to reduce in number our cases approaching an

eventual breakdown. This association will make possible the care of many patients at home or in local general hospitals who now remain neglected. We will bring the tuberculosis problem under general medical supervision and control, a condition which can never be realized if the disease continues to be considered an institutional problem alone.

Our great task today is to save the tuberculosis sanatoria from themselves. Hope in the future lies in a group association including the family physician, the epidemiologist, the clinician, and the nurse both in the institution and in the home. It must be through these new alignments in our measures of treatment and control that will give us a chance to salvage all that is good of the present day sanatoria and from it produce the tuberculosis hospital. It is our opportunity now to make a contribution to preventive medicine that will mark the genesis of a new day in tuberculosis control.

MAGNETIC BELTS

The Council on Physical Therapy reports on the "Vitrona" and "Theronoid," stating that during the past four or five years there have been exploited to the public under various names solenoids for use in connection with the house electric light circuit, for the alleged purpose of curing or alleviating human ailments by means of magnetism. The Council points out that the original device of this kind was the "I-on-a-co" and that two of the most widely advertised and extensively pushed imitations of the I-on-a-co are, respectively, the "Vitrona" of the Rodney Madison Laboratories, Inc., and the "Theronoid" of the Theronoid Corporation. The Council describes the construction of these outfits and discusses the claim that the apparatus will magnetize the iron in the blood and that

such magnetization will bring about the cure of many diseases and conditions. The Council states that it has been known for a half-century or more that magnetism has no demonstrable effect on the human body and its processes. Because of many inquiries received, the Council carried out experiments with the Theronoid and Vitrona. Independently, A. J. Carlson carried out experiments and found that the Vitrona produced no effect of energy metabolism. Other experiments were carried out all of which demonstrated that the Vitrona produced no effect on the human organism within the influence of the coil. Similar experiments with the "Theronoid" showed that absolutely no absorption of power by a human subject surrounded by the Theronoid could be detected. (Jour. A. M. A., May 16, 1931, p. 1693.)

TUBERCULOSIS OF THE ANUS AND RECTUM*

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TUBERCULOUS lesions in and about the anus and rectum, though constituting a comparatively small part in the vast field of tuberculosis, are of sufficient importance to warrant special consideration. While tuberculosis, as a disease, manifests itself usually as a pulmonary lesion, the possibility of its affecting any organ or tissue must not be overlooked. Therefore in every case of phthisis one should take a history specifically covering symptoms referable to the anus and rectum (pain, swelling, bleeding, discharge); likewise the physical examination should not be limited to the part manifestly affected, but should be general, including proctoscopic.

The tuberculous lesions which one finds in the anus and rectum are not numerous, and, with exceptions which will be mentioned, are just as amenable to treatment as lesions elsewhere in the body. They can be divided, roughly, into two groups, as follows:

1. Perianal cutaneous tuberculosis.
 - a. Miliary tuberculosis of anal skin.
 - b. Tuberculosis cutis orificialis.
 - c. Lupoid cutaneous tuberculosis.
 - d. Tuberculous anal ulcer.
2. Perirectal abscess and fistula in ano.

Tuberculous ulceration in the rectum itself is not included in the present discussion because it always occurs as part of a more general intestinal tuberculosis, and therefore does not present a true proctologic problem, but one for the gastroenterologist.

Miliary tuberculosis of the anal skin occurs in conjunction with acute general miliary tuberculosis, which is highly virulent and rapidly fatal.

Tuberculosis cutis orificialis occurs in the mucous membrane and adjacent skin of patients who have no resistance to tuberculosis, and has

been encountered by us in adults who are in extremis.

The lupoid form occurs as a subcutaneous nodule covered by healthy but slightly bluish skin, and is seen in patients who have a manifest resistance to tuberculous infection. This lesion is diagnosed on biopsy. In some cases it may go on to central necrosis with resulting ulcer formation. Surgical removal or destruction with actual cautery, followed by ultra-violet radiation, gives very satisfactory results.

Table I
PROCTOLOGIC FINDINGS IN A GROUP OF 190 MALE PATIENTS
ON ADMISSION TO THE SANATORIUM

NORMAL	52	27%
PATHOLOGIC CONDITIONS.....	138	73%
Int. Hemorrhoids	94	
Cutaneous Hemorrhoids	34	
Hyp. and Inflamed Anal Papillæ.....	21	
Anal Fissure and Ulcers.....	13	
Fistula in Ano.....	13	
Scars of Operation (abscess, fistula).....	4	
Thrombi Ext. Hemorrhoids.....	8	
Peri-rectal Abscess.....	1	
Stricture of Rectum (Injury).....	1	
Total of 189 Lesions in 138 Patients		

The so-called anal ulcer, we feel, is a definite clinical entity and its evolution can in most cases be easily followed. For example, a patient may complain of definite pain and possibly some bleeding at the time of defecation. This leads us to suspect a simple anal fissure, and examination reveals the presence of such a lesion. Then, after a week or so if the fissure is not treated, the patient continues to complain and examination then shows a ragged, indurated, fiery red ulcer at the site of the previous simple fissure. Records of the case reveal that this patient has a decided positive sputum or active intestinal lesion, which has been the source of infection of the fissure.

We have found the best treatment for these lesions to be section of the external sphincter, fol-

*Read before the Clinical Section, National Tuberculosis Association, at its annual meeting, Memphis, Tenn., May 10, 1930.

lowed by destruction of the diseased tissue with the cautery. Daily applications of heat and ultra-violet irradiation, hasten healing of the operative wound.

over and the infection burrows into perirectal tissues and eventually ruptures through the skin or less frequently back into the bowel. The usual history in a case of this type is about as follows:

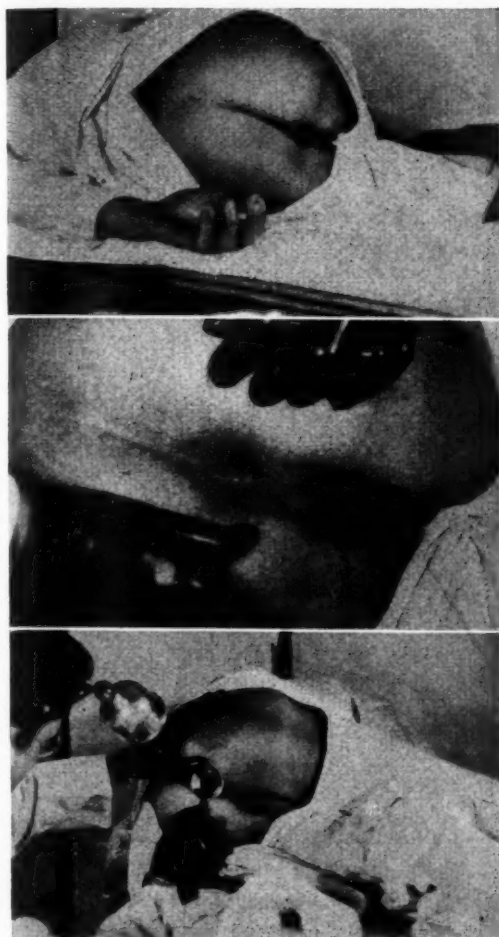


Fig. 1. Patient in Sims position renders adequate external and proctoscopic examination easy.



Fig. 2 (Top). Lupoid tuberculosis of peri-anal skin.

Fig. 3 (Center). Tuberculosis cutis ani.

Fig. 4 (Bottom). Tuberculous anal ulcer.

In the examination of 551 patients we have encountered twelve cases of tuberculous anal ulcer, two cases of tuberculosis cutis orificialis and one case of the lupoid form.

Perirectal abscess and fistula in ano really constitute a single topic, for fistula is the result of an untreated or improperly treated abscess. Perirectal abscesses develop from infection in an anal crypt. The crypt becomes inflamed, sealed

the patient notices some soreness about the anus, then after a few hours a painless swelling adjacent to the anus. As time goes on this mass enlarges and frequently becomes very painful be-

fore it ruptures or is lanced. The resulting fistula then follows one of two courses, until operated, namely, it continues to increase in size, with increasing numbers of sinus tracts, or it may go

ber that the internal opening always occurs in an anal crypt.

Very frequently one is compelled to perform two or more operations before an extensive ab-



Fig. 5. A typical abscess and its treatment. (a) Marginal abscess. (b) Overlying skin removed. (c) After curettage and cautery. (d) Three weeks postoperative. (e) Healed, six weeks postoperative.

through alternating periods of closing over and breaking down.

Whether it be an abscess or the resulting fistula which one is called upon to treat, the procedure is essentially the same, that is, to dissect out all abscess cavities or fistulous tracts, to demonstrate if possible the opening into the bowel, and to dissect it out as well. We have obtained good results in our series by cauterizing the abscess cavities and fistulous tracts thoroughly with the actual cautery. This applies as well to the opening into the bowel. Remember, the internal opening into the bowel must have been present in order that the abscess could form, but it may be closed at the time of examination. Also remem-

ber that the internal opening always occurs in an anal crypt. Very frequently one is compelled to perform two or more operations before an extensive ab-

Table II
ANO-RECTAL TUBERCULOSIS LESIONS FOUND IN A GROUP OF
320 RESIDENT PATIENTS REFERRED BECAUSE OF
ANO-RECTAL SYMPTOMS

	Male	Female	Total
Peri-Rectal Abscess	11	10	21
Fistula in Ano.....	10	2	12
TBC. Anal Ulcer.....	1	0	1
TBC. Cutis Ani.....	1	0	1
TBC. Proctitis	0	1	1
Total	36	13	49 or 10%

From previous work we have found peri-rectal abscess and fistula in ano in 6% of 1,500 tuberculous patients whose records were examined.

The post-operative care of these lesions demands much of the patience and time of the physician. It is essential that the wounds be kept wide open and compelled to heal by granulation

of three laboratory procedures gives us a reliable "proof of tuberculosis." These are: (1) exudate in guinea pig; (2) macerated tissue in guinea pig; and (3) tissue section. Frequently tissue

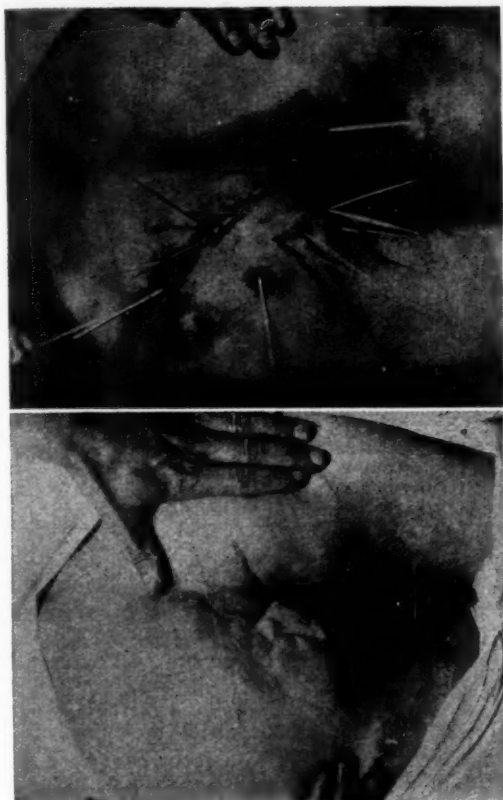


Fig. 6. (Above) An extensive fistula. (Below) After surgical treatment as outlined in text.

for if the edges come together, further fistulous and sinus tracts are prone to develop. We have found the hot sitz bath or infra-red lamp of definite value in hastening the process of repair. Ultra-violet irradiation is a valuable adjunct because of its stimulating action on healthy tissue and its probable specific action on tuberculous disease.

It has been our privilege to study 101 cases of abscess and fistula. From this study several important facts have been learned.

The "proof of tuberculosis" is often quite a task. Smears of exudate are not reliable nor are guinea pigs inoculated with the exudate wholly dependable. We have found that a combination



Fig. 7. The result of proper surgical treatment of an extensive fistula.

section will show a histologic picture of chronic inflammation, but no tubercle formation, and a piece of the same tissue macerated or suspended in formal saline and injected into a guinea pig will show definite evidence of tuberculosis.

Table III

CLASSIFICATION OF ANO-RECTAL TUBERCULOSIS LESIONS

1. Tuberculosis of Perianal Skin:—
 - A. Miliary Cutaneous Tuberculosis.
 - B. Tuberculosis Cutis Ani.
 - C. Lupoid Tuberculosis.
2. Tuberculous Anal Ulcer.
3. Tuberculous Proctitis.
4. Tuberculous Peri-rectal Abscess and Ano-rectal Fistula.

When should one treat a fistula or abscess surgically, in the tuberculous patient? Certainly one would not attempt a surgical procedure unnecessarily when a patient is acutely ill. We have found the best policy to be as follows: (1) drain abscesses as soon as they point; (2) keep fistulae open to prevent burrowing, and then (3) perform radical operation when the patient's general

condition warrants it. We do not feel that anything is to be gained by undue delay in operation.

By cleaning up a lesion surgically it is our opinion that the body is relieved of one extra

two; and in three we were unable to demonstrate any evidence of a tuberculous lesion elsewhere in the body. The results in the seventy-eight cases treated surgically show 90 per cent healed and



Fig. 8. The end-result of a recurrent peri-rectal abscess which was lanced every two or three years over a long period of time; ramifying sinus tracts all through pelvic fascia.

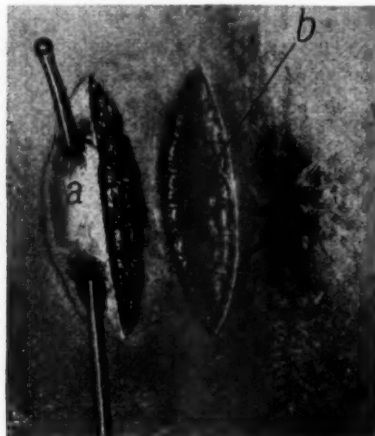


Fig. 9. One reason why fistula frequently do not heal after operation. Section (a) removed, but (b) the sinus to anal canal overlooked.

focus of disease, and we have noticed general improvement in the majority of our patients so treated.

Positive sputum was present in all but five of our series, and an active enteritis existed in ten.

Table IV

THE SUMMARY OF OUR RESULTS WITH PERI-RECTAL ABSCESS AND FISTULA IN ANO IN 101 CASES

Cases Observed—101
Cases Proven Tuberculous—80—80%
Cases Inadequate or No Laboratory Work—21—20%
Cases Operated—78
Proven Tbc—70—90%
Inadequate Laboratory Work—8—10%
Healed—65
Healing (Recent Operation)—5
Dead—8—10%
Cases Not Operated—23
Proven Tbc—10—43%
Inadequate or No Laboratory Work—13—57%
Healed—8—35%
Dead—15—65%

In tuberculous individuals we have observed perirectal abscess and fistula in ano in 5.8 per cent.

Of the seventy-eight cases undergoing operation, far advanced pulmonary lesions existed in fifty-seven; moderately advanced lesions in eleven; incipient lesions in five; bone lesions in

10 per cent unimproved or dead; while those cases which for various reasons were not subjected to operation showed 35 per cent improved or healed, and 65 per cent unimproved or dead.

CONCLUSIONS

1. Tuberculous lesions about the anus and rectum occur secondary to a focus elsewhere in practically every case.
2. In our present series of cases perianal tuberculous skin lesions were found in 0.8 per cent of patients observed.
3. Perirectal abscess and fistula, in the same group, occurred in 5.8 per cent.
4. The more common types of perianal skin tuberculosis can be healed if properly treated.
5. Perirectal abscess and fistula in ano in the tuberculous patient present a typical history and clinical picture, and are undoubtedly all tuberculous in origin.
6. Properly treated surgically, these abscesses and fistulae will heal in at least 90 per cent of cases; neglected, not more than 35 per cent become quiescent.
7. Surgical removal of these lesions relieves the body of the added work of trying to heal an additional tuberculous focus.

CARCINOMA OF COLON AND SIGMOID*

F. C. SCHULDT, M.D.
Saint Paul

THE one outstanding destroyer of human life, the cause of which has so far baffled medical science, is cancer. I have therefore chosen one phase of this disease as the subject of my address and shall take up carcinoma of the colon and sigmoid, dwelling upon its etiology, diagnosis and operative therapy.

I hesitate to add to the already voluminous American and European literature on the subject, but it is by repetition that impressions are formed. I shall base my remarks on five colon resections performed on four patients.

The proponents of preventive medicine are forever preaching to the laity the importance of recognition of early signs and symptoms. We read the admonition and subscribe to the doctrine. But too often a patient comes to us with more or less definite symptoms which have existed over a period of months and we advise a long period of observation before we consider the condition serious. It is unfortunate that the history of the patient so often reveals such an enduring patience with distressing symptoms both on the part of the patient and the physician. Tennyson said: "Knowledge comes but wisdom lingers."

ETIOLOGY

The cause underlying carcinoma of the large bowel is of course the cause of carcinoma found anywhere in the body. Rankin says: "Without an understanding of the etiology of carcinoma, one is wise to avoid attempting to explain the reason why in one place the disease is found comparatively frequently and in another infrequently."

Considering the duration of symptoms before a patient seeks relief or before the condition becomes alarming, we must draw the conclusion that we are dealing with a slow growing tumor. Turner pronounces carcinoma of the colon low in the scale of malignancy.

It is through the lymph terminals of the villi of the small intestine that the chyme is absorbed. The function of the cecum and ascending colon

and a portion of the transverse colon is absorption of fluid from the liquid feces. The lymphatic system here is not nearly so extensive and metastases rarely occur.

The colon of the left side is mainly for storage; consequently the need of lymphatics here is negligible and we find a very sparse distribution of lymph nodes in the mesentery of the left portion of the transverse colon, descending colon and sigmoid. Due to the fact that there are very few lymphatic vessels, metastatic extension is unlikely and if it does occur is slowly progressive but is more likely to occur than on the right side.

Constipation is included among the causative factors, but in a careful history of a carcinoma patient the constipation is usually a consequence, not a cause.

Hayden and Shedden state that: "Constipation is so common an ailment that it can hardly be considered as an important etiological factor."

Schmidt and Von Noorden make the postulate that: "Every case of constipation in the carcinoma age should be suspected of carcinoma."

Kauffmann, commenting on this, says: "This does not work out in practice, since the percentage of carcinoma among the big array of constipated patients is negligible."

The physiology of the colon indicates that the fecal mass becomes firm in the transverse colon and hard in the descending colon and sigmoid. Polya says: "The mechanical irritation of hard dry masses impinging on the lining of the descending colon could be a causative factor." Physiology and roentgenology teach us that the descending colon rarely harbors feces long; it is merely a passageway. The cecum, receiving only liquid feces, is not subjected to this possible etiological factor.

Rankin briefly disposes of the relation of diverticulitis to carcinoma, saying: "Probably it is incidental rather than actual." Is it possible that the anatomical sphincters of the colon are a provoking cause for carcinoma? Multiple sphincters have been described. Opinions vary as to where the sphincters are. Lane declares one sphincter each in ascending colon, transverse

*Presidential address presented before the Ramsey County Medical Society, Saint Paul, Feb. 2, 1931.

colon, splenic flexure, descending colon, sigmoid and rectum. While Balli describes rather completely the sphincters of the colon, he designates three sphincters to the cecum and ascending colon,

existing carcinoma were other malignant polyps. This work of Schmieden and Westhues was corroborated by Aschoff. The grouping of the polyps depends on the differentiation of the cells

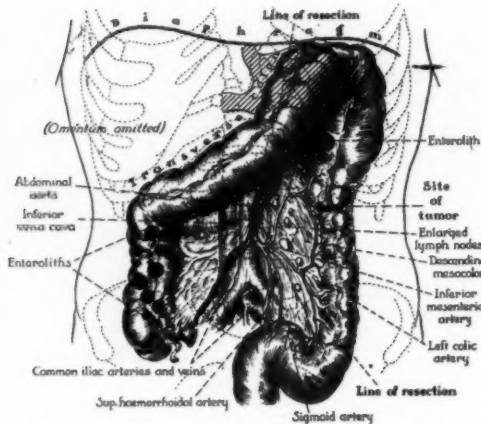


Fig. 1. Case 4. Drawing based on radiograms and gross pathology.

one each to the transverse colon, splenic flexure, colo-sigmoidal junction and in the terminal colon between sigmoid and rectum. There are no sphincters in the descending colon. Therefore the fecal mass does not remain long in the descending limb. A barium enema will soon leave this portion of the bowel while in a barium meal we rarely can visualize any content in the normal descending colon. True, the mass has been dehydrated and sometimes hard, but it passes through the left limb as if its only function were to provide an avenue for the mass to the sigmoid.

A possible forerunner to a cancer should be considered. Schmieden and Westhues, from the University Clinic of Frankfurt, Germany, report on thirty-five cases of colon carcinoma, and in a comprehensive article review the much debated theory of the etiology of carcinoma origin from polyps. They classify polyps into three groups: (1) benign; (2) benign, some becoming malignant; (3) malignant.

Schmieden and Westhues were able to prove that of twenty-eight cases of cancer of the colon with operation sixteen had their origin from polyps. They came to this conclusion in that they either could demonstrate directly that the existing carcinoma had by configuration its origin from a polyp or that in the near vicinity to the

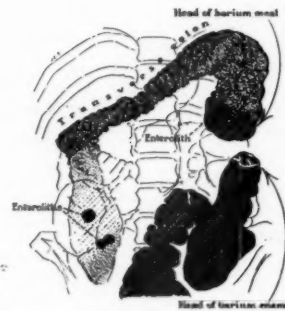


Fig. 2. Case 4. Shadowgram interpretation of radiogram.

in the polyp and their staining qualities. The cells of the glands stain much darker in group three and the epithelium is higher, while those in group one which are benign stain lighter. They state that a long pedicle does not determine the grouping, as a long pedicle polyp may fall into either group. "Adenomatous polyps constitute the most dangerous predisposing factor in the development of adeno-carcinoma," says Hayden and Shedden.

Schmieden and Westhues report that on careful examination of resected segments additional polyps were found at times in great numbers, and they make the claim after an extensive study that inflammation is important in the etiology of polyps.

SYMPTOMS

The attitude presented in the history of the average patient is very often too optimistic about the gravity of his symptoms. Patients make light of a colicky pain of the past week or month, or, they say: "For the past month I have not been as regular as I used to be." In the light of knowledge one would say that at that time there may be present, with only such meager symptoms, an annular or cauliflower tumor in the left colon which may have existed for six months and is showing evidence not of a beginning, but rather advanced pathology.

Kauffmann puts it in these words: "Palpable

tumor, colic, obstruction signs, microscopic blood and mucus in the stool are not early signs."

Rankin says, "Loss of weight, cachexia and dehydration are not symptoms of primary cancer, but of the metastases." So, among the early signs, remain only slight bowel irregularities and indefinite pain in the abdomen not related to food intake, activity, or time of day. Truly a meager program to work on. Similar colic on previous occasions, due to indiscretion in diet, will be remembered by the patient and he hopes to be better tomorrow. So weeks linger. As the tumor progresses its location becomes indicated.

Carcinoma in the cecum and ascending colon will produce a most profound anemia, a palpable tumor in the right abdomen and rarely obstruction. Tumors of the left side of the abdomen are not accompanied by anemia but by gradually increasing obstruction. Usually such patients eat well, but find themselves using every form of laxative.

Kohn says: "When the cancer involves the colon the symptoms are not ordinarily significant of the disease itself, and it is often difficult to make a diagnosis." The symptoms become exaggerated. Borborygmus is often present, at times an embarrassing audible rumbling. In a thin walled abdomen a visible peristalsis is evident. The stool may consist of hardened masses. There may be red blood present when the tumor is in the sigmoid or rectum. Mucus is present. When the tumor is in the rectum tenesmus is a dominant symptom.

After a period of months or years of partial obstruction the proximal colon becomes greatly distended and hypertrophied, assuming the dimensions of a colon in Hirschsprung's disease. Later the small intestines begin to balloon, and the space reserved for the stomach becomes diminished. Peristalsis continues either iso- or anti- and the situation is serious.

Rankin estimates that acute obstruction exists in 5 per cent of cases and that it sometimes comes without warning due to some complications such as abscess of the bowel wall, perforation of the bowel proximal to the tumor, or peritonitis due to a thinning out of the colon, permitting bacterial transmission.

DIAGNOSIS

The early symptoms of carcinoma of the colon are indefinite and frequently are not severe

enough to cause the patient to seek advice. At times a mild abdominal pain comes in attacks which heretofore had not existed and a former regularity of the bowel is lacking, so that the pa-

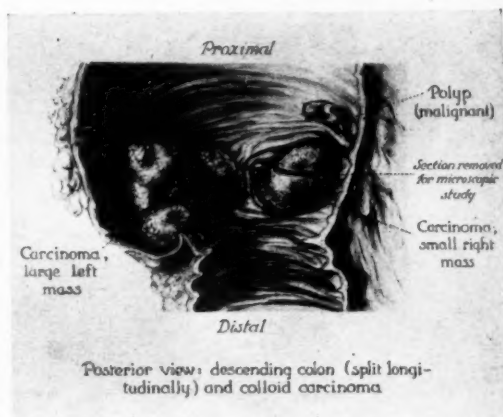


Fig. 3. Case 3. Drawing of specimen.

tient's attention is directed to his welfare. The common fault lies in failing to look for a carcinoma when suspicion of its presence should be aroused by the history. Whether the patient is young or old and an ever increasing constipation with crampy pain in the lower abdomen is present, it is indeed wise to consult a physician. If the history of the patient indicates that the change in bowel habit has been over a period of months, then X-ray studies should be made, following the barium head in its progress and controlling the findings by a barium enema.

A bimanual rectal examination is very simple and should be made. This does not enable one to palpate the right or left limb of the colon, but it will map out a mass in the sigmoid. The urinary bladder should always be empty when making a bimanual pelvic examination, as this will often spare you much perplexity as to the presence of some soft tumor. Dr. John Deaver, at one of the International Assemblies, described in his characteristic manner how he spared a woman an operation by draining the tumor through a catheter in the urethra.

Proctoscopic examinations, in most instances, can now be done in the office with the newer lighted instruments. The patient should be well prepared. A sensitive or tight anus may require a local anesthetic before the proctoscope is in-

sented, but in the average patient there is no difficulty.

A bimanual examination is next made. Just as a prostate can be outlined from a bimanual

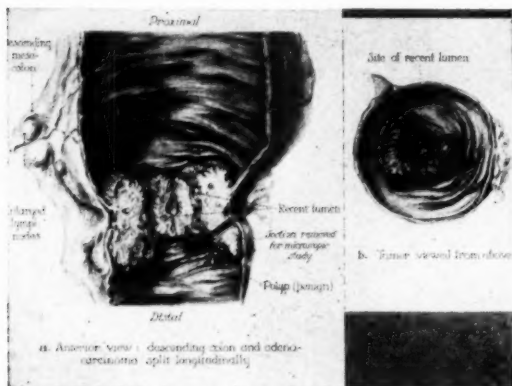


Fig. 4. Case 4. Drawing of tumor from specimen showing complete obstruction.

examination, by repeatedly coaxing the patient to relax, so one may be able to detect even small masses in the pelvic colon if actual distention does not already exist.

The barium enema is an invaluable method for determining a filling defect or an obstruction. The enema column is full and dense and can be watched, while in a barium meal we rely upon the goodwill of the colon to propel a full barium column. This does not always take place. It is broken up and widely scattered and gives one in many instances no clue, and no clue is a negative diagnosis. The literature reveals just such situations repeatedly.

The barium enema is without doubt the most valuable diagnostic procedure. In attempting to give a barium meal, we are often confronted by vomiting and anti-peristalsis and our purpose is defeated. Air filling of the colon may help localize a tumor.

In the literature grave warnings are expressed of the consequences of giving a barium meal in obstruction. I have never seen it do any harm.

At the Mayo Clinic a roentgen technic which originated in Schmieden's Clinic in Frankfort, is now used for diagnosing polyposis. This consists of giving a barium enema, then permitting the patient to completely empty the bowel and insufflating the colon with air. A lacy appearance of the colon shows clearly the outline of the polyps.

A barium enema may appear totally blocked at the point of obstruction when the obstruction is not actually complete, the tumor acting like a valve.

Some years ago Moynihan pointed out that irrespective of the site of the obstruction in the colon the cecum distends to a greater degree than any other part.

Just as a glycosuria is not always a diabetes, so also a blood picture of primary anemia is not always due to a pernicious anemia. Rankin says that: "No patient should receive a diagnosis of pernicious anemia until a thorough examination of the entire colon has precluded the possibility of a malignant growth in the right half." Schmieden incidentally found an eosinophilia of 7 per cent in rectal carcinoma and says that several authorities consider eosinophilia characteristic of polyps.

SURGERY

Whether the patient with a carcinoma of the colon or sigmoid is operable must be determined. Kauffmann reports 51 per cent of his cases inoperable. The site of the tumor with its symptoms determines the *modus operandi*.

In a general way there is a uniformity of thought as to the method of choice, but in some of the important details there is considerable variance. In approaching the surgery of colon carcinoma, I prefer to describe in detail the technic used in advanced cases which may be easily adapted to the earlier ones.

Rankin has simplified the preoperative measures thus: (1) attention to the general condition; (2) reduction of local infection; (3) colostomy; (4) spinal anesthesia.

The patient with carcinoma of the cecum will often have a profound anemia without obstruction, while in a left sided carcinoma a high grade of obstruction may be present. Antiperistalsis, nausea, vomiting, inability to take food or liquid, dehydration and acidosis may result from the obstruction, and hypodermoclysis of one to three quarts of 5 per cent glucose may be required as an emergency measure, taking away all liquids and food by mouth.

An exploratory operation is indicated to determine the extent and site of the tumor and metastases, and to institute relief for obstruction. Fortunately metastases are rarer than in gastric carcinoma.

Should metastases be extensive and the local involvement beyond hopes of removal, then the patient should be spared an unnecessary and ill advised attempt at removal and would live longer with a colostomy. Kauffmann says: "It is useless to operate in the presence of metastases or

appendages and wide mesenteric attachments. Polya uses the appendages to reinforce the suture line. With obstruction, there is always a great difference in the lumen above and below the obstruction.

Polya advocates the open method, cutting the

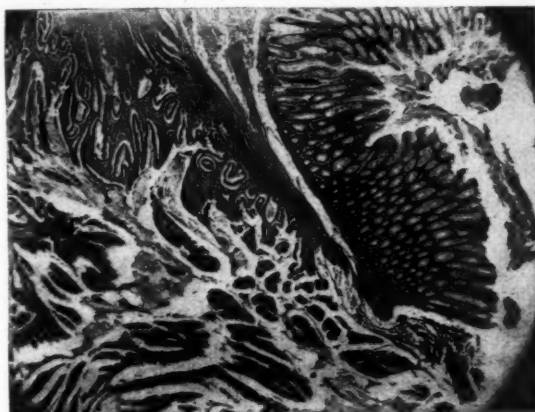


Fig. 5. Case 4. Microscopic section showing sharp borderline between normal and malignant structure.

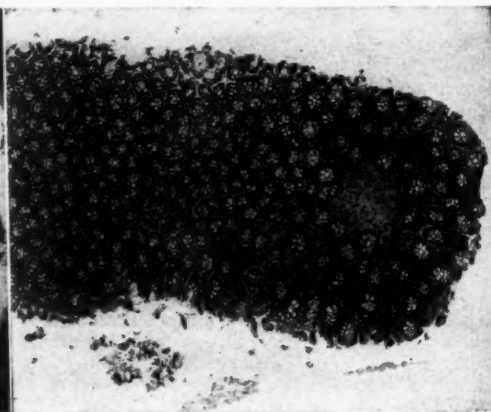


Fig. 6. Case 4. High power magnification of benign polyp.

peritoneal involvement." Polya corroborates this view. Demonstrable involvement of lymph nodes offers a poor prognosis.

Primary resection in the presence of ileus is, according to Kauffmann, an operation equal to murder, having a mortality of 80 per cent. Wide resection must be made. Whereas in gastric carcinoma a one inch margin beyond the tumor is rather safe, this does not hold true for the colon.

In a carcinoma of the splenic flexure and descending colon, the left third of the transverse colon, the splenic flexure and the descending colon to the region of the sigmoid junction should be removed. Horsley has advocated this resection. There must be absolutely no tension on the suture line. The ascending or descending colon is readily mobilized by cutting the parietal peritoneum on the outer side. Lifting the colon medianwards, the mesentery is readily presented and enlarged lymph glands can be located. A triangular segment of the mesentery is removed with the segment and the gap carefully sutured. The proximal and distal ends are now sutured end-to-end.

We all agree with Polya that the suture of the large intestine is much more difficult than that of the small bowel because of its blood supply and thin wall. In addition it has annoying fatty

bowel with a knife, sponging the mucus from the open bowel and then suturing. On the right side the end-to-side anastomosis of ileum to transverse colon overcomes the difference in lumens. Polya reports leaving the transverse colon end on the exterior for relief from gas. This method caused an intestinal strangulation in one clinic and was discontinued.

Mikulicz, for twenty years in the Breslau Clinic, advocated his well known exteriorization method. Kauffmann reports that results in primary resection, since Kuettner has been there, have been so successful that in well chosen cases the Mikulicz method is not used.

Bell is of the opinion that the Mikulicz operation should be abandoned, except where gangrene of the bowel exists, owing to the long period of hospitalization, high percentage of recurrence, danger of thrombosis in vessels and postoperative herniation.

Rankin reports in a series of cases a 12 per cent recurrence in the incision with the Mikulicz technic, so he has devised a modification. He applies his two bladed clamp to the proximal and distal segments of the bowel, removes the loop, closes the rent in the mesentery, sutures the peritoneum around the segments, leaving the clamp on forty-eight to sixty hours without dis-

turbance to the patient. No food is given by mouth, but glucose subcutaneously is administered. After sixty hours the proximal blade is opened, gas is permitted to escape, and in a week



Fig. 7. Case 3. Low power magnification of malignant polyp.

the clamp falls off the distal end. The spur is cut as in the Mikulicz operation. In one-half of the patients the bowel closes spontaneously. In a closed end-to-end anastomosis the colostomy may be closed in three weeks.

Diet following operation is important and should contain food low in residue and rich in carbohydrate value. Samson Wright, in applied physiology, states: "The feces are not derived to any extent from ingested food, but mainly from the secretions of the alimentary canal. The feces of starving animals do not differ in composition from those of normally fed animals, but are less in amount."

PROGNOSIS

Kauffmann estimates a mortality of 53 per cent in cases of carcinoma of the colon with obstruction, following preliminary operation and resection.

Kauffmann hopefully says that: "Metastases are seldom after three years." Other authors say five years. Turner feels that the mortality has been halved since preliminary operation has been adopted.

Turner and W. J. Mayo advise wide resection even if metastases are present, saying that metastases progress much slower when the primary tumor is out.

Schmieden and Westhues determined that in one instance a recurrence in six months was due to a malignant polyp proximal to a previously excised carcinoma, since metastases do not have a tendency to form an annular constriction.

CASE REPORT

Case 1.—Mr. M., aged 63, was first seen August 22, 1921. The patient complained of a rather sharp pain

in the abdomen of a month's duration. His abdomen has not been right for the past four years. His appetite has been good, but he has been very constipated. There has been a loss of ten pounds in the past month. Following severe abdominal cramps he has passed black stools.

All physical findings were negative. A bimanual rectal examination was not possible as the anus was very tight. Following the perianal injection of novocain a bimanual examination was easily made and we could make out a large mass in the left pelvis.

Impression: (1) carcinoma of sigmoid; (2) diverticulitis.

Upon operation under ether on August 31, 1921, a large tumor mass was found in the pelvis. It was freed with difficulty and lifted entirely out of the abdomen. Primary resection seemed so feasible that the mass was removed and an end-to-end anastomosis done. A colostomy of the proximal loop was made. A segment of twelve inches was resected, and there was no tension on the suture line.

Microscopic section showed an adenocarcinoma. On gross section we also found considerable inflammatory involvement and a pus pocket in the wall of the thickened bowel.

The patient bore the operation well and by the twentieth day had natural formed stools.

In June, 1922, optic atrophy made its appearance. The Wassermann test was found to be negative and X-ray therapy was instituted.

In May, 1925, the patient began having intermittent hematuria, occurring for a day every two weeks. There was no pain nor frequency, but blood clots passed. This condition was not reported until May, 1926, when a cystoscopic examination showed an ulcer near the dome of the bladder.

Diagnosis: Carcinoma metastasis.

A series of X-ray treatments was given during May, June and July and in August cystoscopic examinations showed the ulcer to have diminished in size. By December the patient had gained twenty pounds and had noticed hematuria only once since July.

In January, 1931, he was failing rapidly although a barium enema showed no bowel involvement. Since the reading of this paper he became extremely exsanguinated from his hematuria and death ensued.

Case 2.—Mrs. M., aged 73, was first seen July 16, 1926.

The complaint was of quite a severe pain in the left lower quadrant accompanied by rumbling and gurgling noises in the abdomen for the past three months. Constipation had been present for the past two months with absolute obstipation for two days. The appetite had been fair but her health had been failing for the past six months and she had lost some weight. There had been no diarrhea.

Vaginal examination was negative. A barium enema showed obstruction in the mid-portion of the descending colon. A barium meal, forty-eight hours later, showed the head of the column in the mid-portion of the descending colon.

Upon operation under ether on July 20, 1926, a mass

was found in the distal end of the descending colon. This was freely movable and could be lifted out. There was not much distention of the intestines present. Resection was made one inch on each side of the mass and an open end-to-end anastomosis made. As there was no tension on the suture line and the anastomosis seemed satisfactory no colostomy was done. One week later some fecal discharge developed at the line of the anastomosis, but soon closed. X-ray therapy was instituted in April, 1927.

In May, 1927, a hard nodule was present at the site of the operation. Opening this resulted in a fecal fistula. A colostomy bag was worn and the patient felt improved.

By July a large abscess had formed near the site of the original incision and the carcinoma had spread all through the incision.

Death occurred on July 6, 1928, from metastases in the liver.

Case 3.—Miss C., aged 35, single, complained of pain in the abdomen, constipation and intestinal cramps. The constipation had been present since January, 1928, but was relieved by mineral oil.

An X-ray laboratory reported the bowel normal. The condition grew progressively worse so that cathartics and enemata failed to act. Examination in our laboratory showed an obstruction in the descending colon.

On operation, March 30, 1928, an annular cauliflower mass the size of a walnut attached by a broad base was found completely obstructing the lumen. Microscopic examination showed the presence of an adenocarcinoma.

A segment of the colon near the sigmoid was resected which included about one inch of intestine on each side of the tumor mass. The patient remained entirely without symptoms for two years, when there was a recurrence at the site of the anastomosis larger than the primary tumor and obstructive in character. The patient, a very intelligent young woman, declared in no uncertain terms that the colicky pain and disturbed bowel habit were again identical with the symptoms she had had before, which in the interim had all disappeared.

An extensive resection following a cecostomy was carried out in October, 1930. We found a recurrence with two distinct tumors, one a large cauliflower mass with a small base which on section exhibited the coniferous tree-like design with its individual pedicle (Fig. 3). Healthy mucosa existed on each side of each tumor. This appears clearly in the drawing. It was of great interest to me that we found proximally a polyp with a pedicle 2.5 cm. long on a healthy base (Fig. 7). This was pronounced by Dr. E. T. Bell as near-malignant and belonging in group three of Schmieden and Westhues.

Case 4.—Mr. C., aged 33, was first seen July 20, 1930.

His complaint consisted of hiccoughing, pain in the epigastrium, a general soreness of the abdomen, and recent constipation. For the past three days he has had a severe crampy pain in the left abdomen with obstipation, hiccough, nausea and vomiting of green and

brownish material. For two years he had suffered from an increasing constipation, without attacks of diarrhea. For three months there had been a gurgling and rumbling in the bowels. The abdomen was rounded, but did not give the impression of any marked



Fig. 8. Case 3. Barium enema after resection of left third of transverse colon and all of descending colon. Ascending colon shows spasm of colostomy due to closure ten days before.

distention. No red blood was noticed in the stool. In the hospital the hiccough persisted.

The patient was in much distress from the hiccough and frequent vomiting, sometimes of dark blood. Glucose had to be administered intravenously to counteract acidosis.

In this particular instance his symptoms all pointed to a gastric lesion and our attempt was to visualize the stomach. To add to our confusion the stomach was deformed and situated extremely high. An irregular filling defect could not be interpreted. The esophagus was filled and remained filled for six hours. The first ray of light came when the jejunum appeared to be severely distended and ileum, cecum, ascending colon and transverse colon were found successively to be displaced and greatly ballooned. The transverse colon was situated anterior to the stomach. The head of the barium column finally halted in the upper part of the descending colon (Fig. 2). To verify our findings the barium enema head came to rest within a half inch of the meal head. A dense shadow three-fourths of an inch in diameter in the upper left abdominal quadrant was freely movable (Fig. 1). In the lower right quadrant there was a group of dense shadows, nine in all. The first radiograms revealed a severe jejunal distention, and later radiograms showed also distention of the ileum and colon to a high degree. After twenty-four hours the stomach rugæ still retained barium and the head of the meal was in the descending colon.

For two years the patient had sought medical advice and was graciously recommended to take another laxative each time he came for relief of his symptoms. No

X-ray examination had been done. I believe we are justified in recommending X-ray examinations, not only in such advanced cases, but on suspicion of trouble.

Diagnosis: Carcinoma high in the descending colon.

A preliminary cecostomy was performed on July 26, 1930, under spinocain. A mass was found in the descending colon (Fig. 4).

On August 8, under spinocain, resection of the left third of the transverse colon, the splenic flexure and the descending colon was made to near the sigmoid. The left colic artery and the glands were resected with the mesentery. A number of enlarged lymph glands were encountered, one at the apex of the mesenteric triangle to be removed at the junction of the left colic artery with the mesentery. This gland was removed individually and later proved to be malignant. The liver was free and no other metastases were seen or felt. An open end-to-end anastomosis was made. The dense shadows proved to be hard enteroliths.

I believe every lymph gland in the left mesentery was involved (Fig. 1). There were about six glands the size of a pea and the most proximal at the apex of the triangle of mesentery was completely involved with colloid cancer.

In the gross specimen the tumor was an annular type completely obstructing, and about 3 cm. distally from the tumor was a small polyp 1 cm. high on a healthy base which on section was benign (Fig. 6).

Convalescence was stormy for a time due to severe griping abdominal pain. The intestinal suture line held well and his stomach and bowel function became normal.

The cecostomy was closed on August 29, and, aside from some griping, convalescence was uneventful and the patient went to work as engineer on October 15. By November he weighed 156 pounds, having gained 17 pounds in two months.

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ACUTE MECHANICAL OBSTRUCTION OF THE LOWER BOWEL*

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MUCH confusion has arisen in the past from a too general consideration of intestinal obstruction, without regard to the importance of its location. The symptoms, treatment and prognosis may vary greatly in relation to the type and location of the obstruction. I shall consider here only the mechanical variety, located in the lower ileum and colon. For purposes of analysis the types will be classified as: (1) simple, (2) strangulated, (3) complete, and (4) incomplete.

In simple obstruction there is no material interference with the blood supply. It most often occurs high in the canal, as in obstruction to the pylorus or duodenum by carcinoma, congenital bands or cicatricial contractions. It may also be found in the lower bowel, but if allowed to progress in this location, will nearly always cause interference with the circulation and go on to strangulation. The cases of simple obstruction occurring in the lower bowel are usually the result of growths and foreign bodies, such as gallstones. If the block is complete, strangulation may occur early because of extensive bowel distention.

In obstruction with strangulation there is a definite interference with circulation. Such cases usually result from bands, hernia, or intussusception, where there is a more or less complete blocking of the circulation early in the obstruction. As a rule in obstruction with strangulation the condition is more serious, and the mortality is much higher than in cases of simple obstruction.

The complete and incomplete types of obstruction are self-explanatory. Some are complete at their onset, but many begin as incomplete and later become complete. It is obvious that the more complete an obstruction is, the more serious is its outlook.

The location of the obstruction is an important factor. In the upper bowel obstruction the toxemia is not so great as in the lower. The

chief difficulty in this type lies in the fact that the patient begins to vomit early, and therefore rapidly becomes dehydrated, and loses his chlorides. If the condition is not recognized early, dehydration, hypochloremia and starvation may cause a rapid termination. Today, however, because of the almost universal understanding and application of the principles of blood chemistry, these cases do not present so serious a problem. The proper administration of water, sodium chloride and glucose will control the danger factors for a long period of time.

In lower bowel obstruction, in addition to the above factors of dehydration, hypochloremia and starvation, there is the added dread of strangulation, toxemia and peritonitis. An obstruction in this location is often insidious in its onset and grave symptoms may not appear until toxemia and even peritonitis are well advanced. For these reasons the mortality is extremely high and the condition should be considered as a separate entity.

With these points in mind, the author has made an analysis of thirty-six consecutive cases of lower bowel obstruction occurring in his private practice during the nine years from January, 1921, to January, 1930. The cases chosen were from private practice, and they received daily, personal observation.

In Table I the cases have been tabulated as to cause, type of obstruction, type of operation and result. Only the cases in which there was a marked interference with circulation were classified as strangulated. In the cases due to inflammatory adhesions, only one was recorded as strangulated. Some of the others may have been, but since only an enterostomy was done, no accurate observations could be made. Thirty-one of the obstructions occurred in the lower ileum and five in the colon.

Table II is a summary of Table I, showing a mortality of 11 cases out of the 36, or 30.55 per cent. A detailed analysis of the mortality is given in Table VI.

It is a well known fact that previous opera-

*From the Department of Surgery, The Nicollet Clinic. Read before the Minnesota Academy of Medicine, Dec. 10, 1930.

TABLE I

NO. OF CASES	CAUSE OF OBSTRUCTION	NUMBER OF OPERATIONS	TYPE OF OBSTRUCTION	TYPE OF OPERATION	DIED	RECOVERED
16	Bands of adhesions	15 (1 not operated)	Complete 14 Strangulated 14 Incomplete 2	Release of obstruction 8 Release of obstruction and enterostomy 7 Enterostomy only 1	7	9
5	Intussusception	5	Complete 5 Strangulated 5	Reduction of intussusception 3 Resection of bowel 2	2	3
6	Inflammatory adhesions	6	Complete 6 Strangulated 1	Relief of obstruction 1 Enterostomy 5		6
3	Carcinoma of descending colon	3	Complete 3 Strangulated 1	Resection of carcinoma and colostomy	1	2
2	Complete atresia of colon and ileum Meckel's diverticulum	2	Complete 2 Strangulated 1	Resection of bowel 1 Relief of obstruction and resection of diverticulum 1	1	1
1	Volvulus of colon with band of adhesion	1	Complete 1 Strangulated 1	Relief of obstruction and enterostomy		1
2	Hernia Inguinal hernia Hernia of ileum through broad ligament	2	Complete 2 Strangulated 2	Obstruction relieved	2	2
1	Apricot in ileum	1	Complete 1	Apricot removed and enterostomy		1

TABLE II

NO OF CASES	TYPE OF OBSTRUCTION	TYPE OF OPERATION	CASES OPERATED	NOT OPERATED
36	Complete 34 Strangulated 25 Incomplete 2	Relief of obstruction 14 Relief of obstruction and enterostomy 9 Enterostomy only 6 Resection of bowel 3 Resection of growth and colostomy 3	35 DIED 11 (30.55%)	1 RECOVERED 25

tions play an important part in the development of acute mechanical obstruction. This is illustrated in Table III. Of the 36 cases tabulated, 20 (55.5 per cent) were the direct result of previous operations on the pelvic organs or the lower bowel.

Table IV shows the number of hours or days that symptoms of obstruction were present before operation. It is impossible to state in a particular case just when an obstruction becomes complete. Some of the cases were undoubtedly incomplete at the onset. Three could definitely be recognized as of gradual onset and were incomplete for a considerable period of time. One

was gradual and incomplete. The number of cases is too small to draw any definite conclusion as to the relation between duration of symptoms and mortality; but it is a recognized fact that the longer the duration, the higher the mortality. The above tabulation verifies this statement.

Enterostomy is now considered one of the most important life saving measures in advanced cases of bowel obstruction. A separate analysis has therefore been made of those cases in which enterostomy was performed, giving duration and type of obstruction, together with the condition of the patient and results obtained. It will be noted by studying Table V that all the cases were

advanced and the condition serious. Many of these patients would undoubtedly have died had not enterostomy been done. Of the fifteen patients operated upon, only three died (20 per cent); two from general peritonitis and one from lobar pneumonia.

TABLE III

PREVIOUS OPERATIONS AS A CAUSATIVE FACTOR

Suppurative appendicitis with drainage.....	7
Hysterectomy	3
Ovarian	3
Retroversion	2
Simple appendectomy.....	1
Chronic salpingitis.....	1
Sigmoidostomy	1
Carcinoma of the colon.....	1
Enterostomy	1
TOTAL.....	20

(Of these, seven cases occurred during post-operative convalescence.)

Of the cases in this series which resulted in death, two were due to general peritonitis which was present at operation, one being of three and the other of four days' duration. One patient died from peritonitis or toxemia. This was an out-of-town patient, and could not be observed; but if an enterostomy had been done and proper postoperative care given, the patient would probably have lived. One died from peritonitis, and had a complete paralytic ileus. Only an enterostomy was done. One died from toxemia and operative shock, the obstruction being of four days' duration, and the patient almost pulseless when first seen. Operation was no doubt a useless procedure.

One patient had a paralytic ileus for five days. He had a severe asthma and myocarditis. No operation was done. Postmortem examination showed that a band had obstructed the descending colon. The obstruction was complete, but there was no damage to the bowel or signs of peritonitis. Postmortem examination of the chest was not permitted, but the death was clinically a cardiac one. An early enterostomy would probably have prevented this patient's death.

In one patient with a long-standing myocarditis, an incomplete obstruction was relieved, and gas and stool were freely passed. Death occurred four days after operation, and was due to cardiac failure.

Another patient was relieved of the obstruction; the enterostomy tube drained freely and the

distended abdomen returned to normal; but he died three days after his operation from extensive lobar pneumonia, as proved by postmortem examination.

Three patients died from shock following operation. Two of these were eight and nine months old respectively, and had an intussusception of the ileum into ileum, with complete gangrene. Resection and anastomosis were done. One died twenty-four hours and the other three hours after operation. The third patient, a child three days old, had complete congenital atresia of the colon and lower ileum. Resection was done, but the child died twenty-four hours later.

TABLE IV

DURATION OF OBSTRUCTION IN RELATION TO MORTALITY

HOURS DURATION	NUMBER CASES	DIED	PERCENTAGE
6 to 12 hours	0		
12 to 18 hours	1		
24 to 36 hours	3		
36 to 48 hours	10	4	40
48 to 60 hours	3	1	33.3
60 to 72 hours	10	3	30
4 days	4	2	50
5 days	2	1	50
6 days	1		
7 days	1		
Gradual, incomplete	1		

MORTALITY

In 1925 Tuttle¹ compiled a list of the mortality rates given by various observers. These were as follows: J. M. T. Finney, 36 per cent; C. T. Horine, 40 per cent; C. L. Scudder, 60.4 per cent; St. Thomas Hospital, London, 58 per cent; E. P. Richardson, 41.5 per cent; Guillaume, 63.2 per cent; Deaver and Ross, 42 per cent; C. L. Gibson, 43.2 per cent. The mortality rate in Tuttle's own group of cases was 50 per cent. Holden,² in a survey of 135 cases of all types in 1926, gave a mortality rate of 19.2 per cent.

In my series of cases I found the mortality rate to be 30.55 per cent. Of the patients who died, eight died as a direct result of the obstruction (22.2 per cent), two from heart complications (who would otherwise no doubt have lived), one from lobar pneumonia. Ten were completely obstructed, one incompletely (pneumonia death), seven were strangulated, one was no doubt strangulated, but since only an enterostomy was done no accurate information could be obtained; one, not strangulated, had a cardiac

TABLE V
CASES IN WHICH ENTEROSTOMY WAS PERFORMED

NO. OF CASES	DURATION OF OBSTRUCTION	TYPE OF OBSTRUCTION	CONDITION OF PATIENT	DIED
15	36 hours	2 Complete	15 Marked toxemia	3 (20%)
	48 hours	5 Strangulated	11 Stercoraceous vomiting	2 from peritonitis
	72 hours	5	Bowel cyanotic with dark spots—	1 from lobar pneumonia
	4 days	2	free blood—stained fluid	
	7 days	1	Peritonitis	
			Gangrene with peritonitis	
				RECOVERED
				12

TABLE VI
ANALYSIS OF DEATHS

HOURS DURATION	TYPE	CONDITION OF PATIENT	TYPE OF OPERATION	AGE	SEX	CAUSE OF DEATH
72	Complete Strangulated	Very poor—peritonitis, stercoraceous vomiting (Lower ileum)	Resection and enterostomy	72	F	General peritonitis 4 days postoperative
72	Complete	Very poor (Congenital atresia colon and ileum)	Resection	3 days	F	Shock 24 hour postoperative
36+	Complete Strangulated Gangrene	Very poor pulse 150-200 temp. 102 (Intussusception of ileum into ileum)	Resection and anastomosis	9 mos.	F	Shock 24 hour postoperative
36+	Complete Strangulated Gangrene	Poor (Intussusception of ileum into ileum)	Resection and anastomosis	8 mos.	M	Shock 3 hour postoperative
50	Incomplete	Very poor, old cardiac case (Band obstructing lower ileum)	Relief of obstruction	65	M	Heart failure 4 days postoperative
4 days	Complete Strangulated	Very poor, general peritonitis (Carcinoma of descending colon)	1st stage Mikulicz tube in proximal loop	30	M	General peritonitis 14 days postoperative
72	Complete Strangulated	Very poor, bloody fluid, gangrene bowel (Lower ileum by adhesions)	Obstruction relieved	16	F	General peritonitis 3 days postoperative
5 days	Complete	Very poor (Descending colon obstructed by band)	Not operated	60	M	Paralytic ileus Chronic myocarditis 5 days postoperative
48+	Complete	Very poor, peritonitis, no peristalsis (Lower ileum by adhesion)	Enterostomy	31	F	Peritonitis, paralytic ileus 24 hour postoperative
4 days	Complete Strangulated	Very poor, almost pulseless (Lower ileum adherent to uterus)	Relief of obstruction	45	F	Toxemia and shock ½ hour postoperative
36+	Complete Strangulated	Poor, aged (Lower ileum obstructed by band)	Relief of obstruction and enterostomy	79	M	Lobar pneumonia 3 days postoperative

death, and one had congenital atresia of the bowel and died from shock. With the exception of the last case mentioned, all of the patients that died as a direct result of the obstruction (22.2 per cent) were strangulated.

The death rate from this condition depends largely upon the type of the obstruction and its duration. The rate is high in cases with strangulation. The greater the area of strangulation, the more serious the outlook will be. In this type early operation is of great importance. Delay is no doubt the greatest single factor to account for so high a mortality. It is probably safe to assume that if operation could be undertaken before profound toxemia and peritonitis develop, the mortality rate could be brought below 10 per cent.

CAUSES OF DEATH

Much has been written and many opinions expressed as to the cause of death in acute bowel obstruction. The usual expression is, "The patient died from toxemia." There is no doubt that the term "toxemia" has been used to include a multiplicity of causes which to many of us have not been entirely clear.

The various causes of death can be grouped into three classes: (1) changes in blood chemistry; (2) strangulation and shock; (3) toxemia and peritonitis.

The changes in blood chemistry are: (1) dehydration and loss of sodium chloride, due to vomiting, resulting in acidosis or alkalosis; (2) starvation from lack of food intake; (3) an increase in urea and non-protein nitrogen from toxic absorption and lack of elimination. In all probability some deaths in the past could be traced directly or indirectly to these causes. (McIver and Gamble³ by experimental data have reached the same conclusion.) None of these changes is rapid, except in high obstruction, and with the proper administration of water, sodium chloride and glucose should not occur in a sufficient degree to cause death.

Clinically, it has long been recognized that when a large section of bowel is suddenly and completely strangulated, a rapid severe shock often follows. This has been proven experimentally by Foster and Hausler,⁴ who even claim shock as a primary cause of death. Severe shock from strangulation is well illustrated in two of the above cases in which sudden exten-

sive complete strangulation took place from intussusception of a large section of ileum into ileum. There was only slight dilatation of the bowel and no sign of toxemia or peritonitis, yet there was profound prostration and both patients died shortly after the operations from the added shock. Shock phenomenon following sudden interference with circulation is not confined to lesions of the intestinal tract. It is well exemplified in cysts with twisted pedicles and emboli blocking mesentery, lungs and extremities.

Toxemia and peritonitis are the causes of death in practically all cases of lower bowel obstruction. Let us consider what happens when the bowel is mechanically blocked. First, peristalsis is increased in an effort to relieve the obstruction. Bowel contents and gas cannot pass and dilatation takes place. As this continues, dilatation becomes more marked and there is a constantly growing accumulation from ingested fluid and intestinal secretions, all of which, in its stagnant condition, becomes a good culture medium for anaërobic intestinal bacteria. As accumulation continues, dilatation progresses, so that peristalsis becomes weaker. There is interference with circulation, the bowel looks cyanotic and dark spots appear, due to rupture of muscle fibers and smaller vessels or areas of thrombosis. During this stage considerable free fluid appears in the abdomen. Peristalsis grows weaker and finally disappears. The bowel is covered with gangrenous areas and leakage of the toxic contents takes place, general peritonitis develops, and we have the terminal stage of bowel obstruction.

The absorption of the toxic contents of the bowel has long been considered the cause of death. Many investigators have attempted to isolate a toxin or an organism responsible for this. Bower and Clark⁵ state that of the few anaërobic bacteria found in the intestine, the *Bacillus welchii* is the only one that produces a toxin. In an obstructed bowel it multiplies rapidly and is supposed to account for a large amount of the gas distention. It causes a profound toxemia, much resembling that of gas gangrene. Bower and Clark treated twenty-five cases with an anti-toxin from the *Bacillus welchii*, and believe they noticed much clinical improvement from its use. However, McIver and White's experimental observations⁶ showed large numbers of the *Bacillus welchii* in the obstructed loops, but they could

not ascribe toxemia to their presence. Foster and Hausler⁴ strained the content of an obstructed bowel through gauze, and injected it intraperitoneally into dogs. The dogs became quite sick, but none died. Wangenstein and Chunn⁷ injected filtrates from the contents of obstructed bowel and from normal bowel intraperitoneally into dogs, and proved that all intestinal filtrates are toxic; but they are not any more toxic from the obstructed than from the normal contents.

My clinical observations have been that an obstruction, if simple and without any strangulation, may be present for several days without much evidence of toxemia. The bowel may be very much distended, and contain large quantities of toxic fluid, yet the patient's general condition may be good. If the obstruction, however, progresses to strangulation, the picture is quite different; there is general prostration, the pulse grows weak, there is cold perspiration and cyanosis and the patient is profoundly ill. The general condition of the patient seems to depend upon the extent of the strangulation, and not on the amount of toxic material in the bowel. In some instances, strangulation can be so gradual that it does not produce the above symptoms. This is well illustrated in one of the cases cited. A patient with a carcinoma of the descending colon had symptoms of obstruction for a month, and had been completely obstructed for five days, yet he walked into the office and did not seem very sick. He was operated upon within a few hours. The colon and ileum were tremendously dilated and covered with necrotic areas through which the bowel contents were leaking into the abdomen. He had purulent peritonitis.

It is the acute strangulated case which presents the early profound toxemia. The more extensive the strangulation and the more quickly it develops, the more profound the toxemia will be. It is quite probable that we often confuse the prostration resulting from an extensive progressive strangulation with the toxemia which we suppose results from accumulations in the bowel. As strangulation progresses, so does toxemia. It is, therefore, quite reasonable to assume that the toxemia we often speak of as due to absorption of toxic material from the bowel contents is in reality due to the toxicity which arises from a progressing strangulation. As strangulation progresses, peritonitis develops, and gives us the final picture of death.

SYMPTOMS AND DIAGNOSIS

Pain is invariably the first symptom. It is intermittent and of a colicky nature, with intervals of rest. It is due to peristalsis attempting to force the bowel contents past the obstruction. As the bowel becomes over-distended and loses its contractibility, pain becomes continuous.

Shock is often marked at first in the acute mechanical type, especially when strangulation occurs early, as in intussusception. The primary shock may disappear, but will reappear as strangulation progresses.

Vomiting may occur early when obstruction is sudden and complete. It is usually a late symptom in lower bowel obstruction, and depends on the amount of fluid ingested. In most cases it does not occur until the bowel is over-distended and reverse peristalsis sets in. It is then an overflow, regurgitating type.

Abdominal distention is earliest and most pronounced in the loose, flabby abdomen. It is less evident and often misleading in the young muscular individual. It is difficult to estimate in the obese. In high obstruction, it is usually absent.

Fever and leukocytosis are absent in all non-inflammatory types at first, but appear as leakage takes place and peritonitis develops.

Obstipation is often misleading in obstructions above the colon. The first two enemas may bring good results of gas and stool from the colon below the block. This tends to confuse diagnosis and leads to delay if not properly evaluated.

The stethoscope has been a valuable aid in diagnosis. The peristaltic waves forcing gas and contents onward produce quite a characteristic sound. The gas as it passes on through the loops produces a gurgling sound, and when it meets the obstruction there is often quite a commotion. Either it passes through the obstruction with a rush, or is forced back up the bowel with a piping, blowing sound. The site of the obstruction can often be located in this way. The fluid passing through the loops produces a tinkling, metallic sound quite characteristic of obstruction.

The X-ray has great practical value in diagnosis. This has been recognized for a long time, but has not had general application. Normally, there is not enough gas in the small bowel to be recognized with the X-ray. In obstructions in the ileum, collections of gas can often be seen quite early. Later, as the bowel becomes dis-

tended, it assumes a horizontal position in the abdomen and the gas shadows have a "step ladder" arrangement, as described and illustrated by Case.⁸

In obstruction of the colon, large gas collections can often be seen in the proximal loop, stopping abruptly at the block. If a colon obstruction is suspected, a barium enema should be given to prove and locate it. This is especially valuable in elderly people who have had no previous operations, since it is likely to be due to malignancy, and its location is valuable to the surgeon in planning his operative procedure.

Blood chemistry changes in low bowel obstruction as a rule are found only in late, neglected cases. This is quite the reverse in high obstruction, where dehydration and hypochloremia appear early. Chemical changes must always be sought and proper tests made in order to correct any pathologic change.

TREATMENT

There has always been, and still is, an urgent need for early diagnosis and prompt surgical intervention. This cannot be over-emphasized. There is usually too much speculation concerning the possibility of an incomplete obstruction correcting itself. Cathartics and morphine are responsible for a great deal of delay and damage.

Preoperative considerations. The majority of patients are unfortunately in poor condition when first seen by a surgeon. There is often considerable dehydration and toxemia. The immediate consideration is, therefore, the administration of proper quantities of water, sodium chloride and glucose. This will not only correct dehydration and blood chemical changes, but will also tend to overcome toxemia and promote elimination. This need not consume any additional time. It can be done while the patient is being prepared for operation.

The operation. The choice of operative procedure will depend on the condition of the patient. In a profoundly sick case in which there is little or no evidence of peristalsis, it is usually unwise to consider a laparotomy. A jejunostomy in such instances is the operation of choice. This can be done in the patient's room under local anesthesia.

In patients who are in fair condition, laparotomy should be undertaken. It is quite probable that spinal anesthesia, carefully guarded, will be

the choice in the future. When the abdomen is first opened, look for a collapsed bowel, and carefully locate the point of obstruction. Do not permit evisceration. It is not necessary, and causes shock. If the bowel is greatly distended, enterostomy should be done, preferably just above the obstruction. Drain the bowel at once if conditions permit. This is especially necessary in advanced cases, as it allows the bowel to regain its peristalsis. If distention and strangulation are so great that peristalsis is absent, an enterostomy will do no good until the bowel is emptied of its contents. By relieving the bowel of its contents, the circulation will return, and the bowel will contract and regain its peristalsis. It is not so much the removal of the toxic contents that benefits the patient as the fact that the distention and strangulation are relieved.

In advanced cases where resection of the bowel is necessary, it is often advisable to do a two-stage operation, the bowel being drained first and later resection and anastomosis done.

Postoperative care consists in supportive measures by the administration, subcutaneously or intravenously, of sufficient quantities of water, sodium chloride and glucose to correct or prevent dehydration, starvation or pathologic blood chemical changes. If there is vomiting or gastric accumulations, these should be relieved by gastric lavage. If the bowel remains distended and does not respond to enemas and pituitrin, a hypertonic salt solution should be given intravenously. In some cases spinal anesthesia, as described by Studdiford⁹ and others, has given good results.

CONCLUSIONS

1. In a clinical study of acute mechanical intestinal obstruction, careful consideration should be given to type and location.
2. Strangulation is the most serious complication in low bowel obstruction and occurs in nearly all advanced cases.
3. Toxemia from strangulation and peritonitis is the greatest single factor as a cause of death in low bowel obstruction. The toxemia is probably not due to bacterial toxins in the bowel, since it does not occur without strangulation. The progressive toxemia is no doubt due to strangulation or peritonitis, or a combination of both. The amount of toxemia is in proportion to the extent and rapidity of the strangulation.
4. Enterostomy, especially in advanced cases,

is a great life saving procedure. Its function is not to drain toxins from the bowel, but to relieve distention, thus improving circulation and allowing the bowel to contract and regain its peristalsis.

5. Delay in diagnosis and surgical intervention is responsible for the high mortality in intestinal obstruction. Watchful waiting, morphine and cathartics should be replaced by prompt surgery. In this manner the mortality could be reduced to below ten per cent.

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THE MILO BAR BELL

Those who study the fantastic advertisements of the "big muscle boys," appearing in such magazines as *Physical Culture*, will remember the pictures of the superman, with the musculature of an ox, holding aloft a particular brand of dumbbells known as the "Milo Bar Bell." From the advertising, one gathers that by the use of this particular device the puniest and weediest of individuals can develop into veritable Samsons. It appears that the Milo Bar Bell Company, which exploits this device, is a trade name used by one D. G. Redmond. The Federal Trade Commission has issued an order to Redmond to cease and desist from "representing by pictures, statements or otherwise, that physical development reasonably attributable to natural growth has been brought about by the use of respondent's bar bell or other appliance or course of instruction." (*Jour. A. M. A.*, May 2, 1931, p. 1527.)

SOLVOCHIN NOT ACCEPTABLE FOR N.N.R.

Solvochin (Spicer & Co., Glendale, Calif., distributor) is a solution of quinine hydrochloride containing small amounts of quinine base together with sufficient phenyldimethylpyrazolon (antipyrine) to render the basic quinine soluble. It is claimed that the solution possesses advantage over the usual quinine preparations in that it may be injected without local irritation. It is recommended in the advertising as the medication of choice in the treatment of lobar pneumonia, and it is claimed to be essential that the injections of quinine for the treatment of this disease be by the intramuscular route. The Council on Pharmacy and Chemistry declared Solvochin unacceptable for New and Non-official Remedies because it is marketed with unwarranted therapeutic claims. (*Jour. A. M. A.*, May 2, 1931, p. 1477.)

ACUTE ABDOMEN*

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THE term "acute abdomen" is used to signify the sudden onset of a severe pathological condition in the abdomen, or the climax of a more chronic process. It is announced by pain, this being the outstanding complaint of the victim. It is frequently accompanied by nausea and vomiting, and, with more variance, by the other symptoms and signs.

The acute abdomen is a favorite literary subject. However, it is so demanding, so critical, it so taxes one's ability and judgment, its mortality is so high, that we should crystallize our thoughts so that they will work to the best advantage when we are confronted with the emergency.

Most writers list all of the acute intra-abdominal diseases and give in order their symptoms, signs and differentiations. It seems to me helpful to think first of the possible pathological processes and their symptoms and signs, and then to attach the diagnosis to the organ which we may determine to be involved.

Hertzler³ divided all acute abdominal lesions into two classes: (1) perforative; (2) thrombotic or strangulative.

It makes the situation still more clear to divide them into the following classes: (1) obstruction; (2) strangulation or thrombosis; (3) local inflammation; (4) peritonitis. These may exist singly or in combination, or in progression, one after another. According to their severity and the organs involved, they present the symptoms and signs of the acute abdomen in varying degrees.

I. Simple obstruction may come on gradually or suddenly:

- a. Gradually, due to the growth of a mass, narrowing of a stricture, development of adhesions, or gradual change in position of a foreign body.
- b. Suddenly, due to a foreign body or a kink. The more suddenly it occurs, the more sudden and severe are the symptoms.

Pain is the outstanding symptom. Its character is intermittent or colicky. Its location is over the point of obstruction, radiating according to the organ affected.

For the gall bladder and biliary ducts it is under the right costal margin, referred to the right scapular region.

For the kidney and ureter it is in the lumbar or lateral abdominal region referred downward through the iliac region to the bladder, vulva, testis or penis.

For the appendix it is in the right iliac region, or in the epigastrium, gradually becoming localized over the appendix.

For the bowel it is in the region of the obstruction.

A sudden, complete obstruction produces the most severe pain and is usually accompanied by vomiting. Frequently there are mild signs of temporary shock. After the shock the patient tends to double-up, roll about or walk the floor with each recurring spasm of pain. There is some tenderness over the obstruction if it causes distention of the organ obstructed.

As gas, fluid or material collects behind the obstruction, the organ distends and the pain becomes more continuous or the remission less complete.

Distention of the gallbladder, stomach and intestines may be made out by inspection, palpation and percussion.

Early differentiation between intestinal obstruction and ordinary gas colic taxes our skill. A metallic tinkle heard on auscultation during a spasm of pain, as the intestinal contents strike the obstruction in a distended loop, is considered by Wangenstein⁶ and others to be one of the most helpful signs. It is not always true to form and one must be familiar with intestinal sounds to recognize it. Some time ago, I saw a patient with a strangulated hernia at frequent intervals during the first twenty-four hours while trying to crowd the stubborn patient into the hospital and heard no tinkle. At operation the obstruction was

*Read before the Medical Staff of the Abbott Hospital, Minneapolis, January 6, 1931.

complete and the incarcerated ileum quite dark. The next day another patient, who was vomiting, presented what I thought was a perfect periodic tinkle and increasing distention. An immediate flat film showed no obstructive gas distribution and the symptoms subsided the next day.

The X-ray method, or so-called scout film, should always be used as soon as obstruction is at all suspected as it gives the most reliable help obtainable. Wangenstein states that roentgenologically demonstrated gas in the small bowel is pathognomic. As time goes on, the bowel becomes more and more distended, quiescent and silent, the patient becomes more and more toxic, the vomiting fecal in character. The diagnosis can then be easily made but the mortality is tremendous.

Concerning the appendix, Lockwood⁴ lays stress on the fact that all appendicitis starts as an appendiceal obstruction, or, as he calls it, "acute intestinal obstruction involving the appendix," and should be recognized in that stage and operated at that time in order to lower the present high mortality of appendicitis. We agree that this obstruction should be operated upon early, and not looked upon as a medical condition, "just appendiceal colic," as it has sometimes been in the past. However, appendicitis undoubtedly sometimes starts as a strangulation or thrombosis, not always as a simple obstruction.

A tubal pregnancy becomes an acute obstruction of that organ, which, however, develops gradually until it distends the tube and so causes a constant rather than intermittent pain.

II. Strangulation often causes or accompanies obstruction of a hollow viscus. It may come suddenly with extremely severe pain or the twist may slowly close down on the blood supply. There is more shock than with simple obstruction. The pain is more constant but has severe exacerbations as the viscus tries to free itself. If the structure strangulated has no musculature such as the omentum, the ovary or a pedunculated fibroid, the severe exacerbations do not occur unless a nearby muscular organ becomes stimulated, or involved.

Thrombosis or hemorrhage into such organs as the pancreas, omentum, mesentery, ovary, or a fibroid, causes much the same symptoms as strangulation, by shutting off a section of the blood supply and producing swelling and pressure. When this occurs in the pancreas an

especially acute picture is produced. It is either preceded or accompanied by the activation of pancreatic enzymes. This produces violent irritation with early necrosis and early and rapid peritonitis. Strangulation or thrombosis of a non-muscular organ, therefore, produces as sudden and dramatic an onset as an acute obstruction, but the ensuing symptoms and signs are of an acute inflammation.

III. Local inflammation, the third lesion to be discussed, may occur as a primary entity, starting at any point in any organ in the abdomen, or it may be a sequel to obstruction or strangulation. In inflammation, also, pain is the first symptom. The pain of local inflammation usually comes on more gradually than in obstruction. Those who are awakened in the night, or suddenly struck during the day, with acute cholecystitis or appendicitis or pancreatitis have an initial obstruction or thrombosis. With the pain of inflammation, strangulation or thrombosis the patient does not toss about as he does with obstruction, but lies quietly in whatever position puts the least pressure upon the inflamed or thrombosed area. The pain is steady and increasing.

Nausea and vomiting usually follow pain, but do not become feculent as in bowel obstruction.

In addition to pain, the great sign indicating inflammation is tenderness. Tenderness is pain caused by pressure. Manual palpation, skilfully applied, with both superficial and deep pressure, first to areas thought not to be painful and then approaching the suspected area by comparison, is the tried and true method of eliciting tenderness. There are other devices especially suited for confirming tenderness in certain organs, notably the appendix.

1. McBurney's sign is tenderness to pressure over McBurney's point.

2. Meltzer's sign. With the examiner's finger pressed deeply over the site of the appendix, the patient flexes the hip on the body with the knee extended. This renders the psoas rigid and causes more pressure against the appendix between the psoas and the fingers, causing pain.

3. Muscular spasm or resistance on pressure over the appendix.

4. Deep inspiration causes pain in the inflamed gallbladder or appendix by pressure from above and motion.

5. The gravity sign. When turned upon the right side pain is caused in the inflamed gallbladder or appendix because of the pressure of the organs upon them.

6. Murphy's sign. Much like the gravity sign in principle, pressure upon the left side of the abdomen causes pain in the region of an inflamed appendix or gallbladder by transmission of the pressure.

7. Rectal tenderness sign. Finger pressure upward through the rectum to the right causes pain in an inflamed appendix, especially if opposed by abdominal pressure. This is especially valuable in children, as in them the appendix region is in closer proximity.

8. The flexed knee sign. The patient tends to keep the knee and hip flexed with the leg supported to lessen pressure on an inflamed appendix which may be compressed between taut psoas and abdominal muscles.

9. Bastedo's test is especially devised for eliciting tenderness in a subacute or chronic appendicitis, and helps differentiate from a stone in the ureter and salpingitis. The colon is distended with air from a Politzer bag until, as shown by percussion, air distends the cecum. Nausea and pain then indicate tenderness or sensitiveness in the appendix.

10. Rovsing's test is the same, except that the cecum is distended with fluid and gas by progressive retrograde pressure from the sigmoid along the course of the colon, preferably with the patient standing.

11. Blumberg's sign, or rebound tenderness, is pain caused by the sudden release of slowly applied pressure, and indicates peritoneal irritation or early localized peritonitis.

All of these signs were collected and beautifully described in a paper by Cranmer² in 1925.

Early pneumonia and pleurisy often cause pain and tenderness in the abdomen in the area supplied from the same spinal segment which supplies the pulmonary area involved. This tenderness, however, is superficial, lessening instead of increasing as the pressure is deepened.

With tenderness there is muscular resistance to palpation in proportion to the degree of inflammatory pressure within. This is an elastic resistance and may be partly overcome by gentle firm palpation and voluntary relaxation by the patient, in contrast to the board-like rigidity of peritonitis.

Next to pain, tenderness and resistance, fever and leukocytosis indicate inflammation. These usually rise much higher in pneumonia, pleurisy, and general enteritis than in any local abdominal inflammation, and local inflammation of a serious degree may exist without them, especially if it is the sequel to obstruction or strangulation rather than a primary severe infection.

Tenderness, then, remains the preëminent and outstanding sign in local inflammation.

Acute enteritis and colitis present inflammation with atypical symptoms. The inflammatory products are not confined but have free drainage through the bowel. The pain, therefore, is not steady, but colicky, as it is in obstruction, because of stimulated peristalsis. Contrary to obstruction, however, the peristalsis is productive of diarrhea, the liquid stools sometimes containing mucus and even blood. When this occurs it must be distinguished from the strangulation of intussusception in which a tender mass can usually be felt by either abdominal or rectal palpation.

With enteritis and colitis there is tenderness and moderate muscular resistance over the entire abdomen. Auscultation gives the sounds of very active peristalsis with rapid movement of fluid and gas but without the striking metallic tinkle heard with obstruction. One should take every opportunity to auscultate normal and abnormal abdomens to become familiar with the sounds.

A difficult pitfall which one must always keep in mind is the fact that not uncommonly an acute cholecystitis, appendicitis or diverticulitis develops on top of a typical general enterocolitis.

IV. Peritonitis is usually secondary to local inflammation or perforation of a viscus. It may be a sequel to one of the other three lesions we have been discussing—obstruction, strangulation or thrombosis, or acute local inflammation—or it may itself usher in the acute picture as the result of the perforation of an ulcer.

Peritonitis passes through three stages: (1) primary contamination; (2) reaction; (3) late peritonitis with paralytic ileus.

The typical first stage caused by perforation of a viscus without much warning is ushered in by acute pain and shock with a rapid weak pulse, low temperature and cold perspiration. Respiration is restricted, the abdomen is scaphoid, and there is extreme tenderness and board-like rigidity. The patient lies absolutely quiet, as move-

ment causes great pain. In pelvic peritonitis, as from a perforated sigmoidal ulcer, the rigidity and tenderness are hidden and must be found by deep pressure over the pelvic brim and by rectal or vaginal examination. It must be remembered that there is an inferior abdominal wall as well as anterior, lateral, and posterior.

If the contaminating substance is emitted from a hollow viscus by gushes with recurring peristaltic waves, the pain is accentuated in savage spasms.

The second stage, or reaction, exhibits less pain, a better general appearance, and a normal temperature and pulse, but there is great pain upon movement, and tenderness and rigidity remain. Free fluid may be found and gas may overlie the liver as found by percussion and X-ray.

The third stage ensues shortly. There is paralytic ileus. Vomiting usually recommences, and is without force. The abdomen is distended and tender with lessened rigidity and without visible or audible peristalsis, the face is worried and anxious, the pulse is rapid and small, the temperature variable, the breathing rapid and labored, the blood pressure falls, and death may soon follow.

When acute peritonitis follows the rupture of an acute local inflammation which was under painful pressure, there is at first a relative decrease of pain on account of the released pressure and the first stage is less dramatic, but there is still some shock if the area is not well walled in. If enough adhesions have been built there is no first stage shock and the tenderness and rigidity are restricted to the area involved but are definitely present. When peritonitis occurs by slow extension of inflammation, the earliest sign is rebound tenderness, pain caused by sudden release of slowly applied pressure.

If the contaminating substance is blood, as from the spleen, liver, mesentery, omentum, or fallopian tube, the irritation of the peritoneum is less severe, there is less pain, tenderness and rigidity, varying in proportion to the amount of blood and the rapidity with which it flows into the peritoneal cavity. Shock varies with the amount of trauma to the viscus and the amount and suddenness of blood emission. There is less recovery in the second stage, as blood loss is the main factor.

Rigidity is the outstanding sign of peritonitis. This term is sometimes used too loosely, to indicate the more elastic and more controllable muscular resistance which signifies local inflammation. The two must not be confused. The rigidity of peritonitis cannot be changed in the least by the patient's greatest voluntary effort or the examiner's most gentle palpation.

In meeting the situation presented by any given patient with an acute condition of the abdomen, I believe it most helpful to first ask oneself, "Do the history, symptoms and signs point to an obstruction of some viscus, large or small; to strangulation or thrombosis; to local inflammation; or to peritonitis?" In differentiating we must remember the stages through which each one passes and the possible sequences from one lesion to another. We are not always called in at the beginning and we must reconstruct, from a carefully obtained history, the development and sequence of the lesion or lesions up to the time of the examination.

When we have decided upon the probable lesion and the viscus affected, the next decision is for or against immediate surgery.

Any obstruction except biliary or ureteral obstruction demands immediate surgical relief. These latter, of course, also indicate surgical interference if not spontaneously relieved, but not as an emergency unless the pain continues unabated for more than a reasonable time.

Strangulation or thrombosis always indicates surgery.

Any acute local inflammation, except acute cholecystitis, acute pyelitis and acute salpingitis, requires immediate operation. Some advocate it for acute cholecystitis, but most surgeons believe that the mortality is increased by operation in the acute stage because of difficulty in preventing peritonitis. The acute inflammation will usually recede under conservative treatment with ice bags and duodenal lavage. If improvement is not evident after a very few hours of this treatment, operation must be undertaken. The gallbladder should then be only drained rather than removed, unless it is actually gangrenous. Removal of the acutely inflamed gallbladder increases the risk of peritonitis and septicemia.

The mortality rate from appendicitis has actually been increasing. Ten to fifteen years ago there was revulsion against the surgical popu-

larity of the appendix. This was probably justified, but the pendulum swung too far and many acute cases are now neglected. Wallace⁵ reports 600 cases of acute appendicitis, 398 simple ones with .5 per cent mortality, 202 with perforation and 5.5 per cent mortality. Others report a mortality in cases with perforation as high as 14 per cent. Bower and Clark¹ state that 73 per cent of fatal appendicitis cases have received laxatives and that 67 per cent of the deaths are because of the laxatives. They review 1,000 operations for appendicitis, 45 per cent of them with perforation, by fifty-five different surgeons in one year in each of two Philadelphia hospitals (1926 and 1929 respectively), with an overall mortality of 8 and 10 per cent, respectively. If, in the presence of abdominal pain, the appendix can be shown to be tender by any of the methods listed above, immediate operation should be insisted upon.

The fact that ordinary indigestion with gas colic and even enteritis and colitis is often helped by a cathartic has given the laity the habit of taking a cathartic for every abdominal pain. This is disastrous for every surgical condition, and other treatment is also better for gas colic and enterocolitis while the pain lasts. The public should be taught never to take a cathartic in the presence of abdominal pain, but if the pain is not soon relieved by heat and a small enema a physician should be called.

Peritonitis, if of the rare pneumococcus type, has a lower mortality if not operated upon. All other peritonitis I believe is immediately surgical, with conservative surgery indicated, and careful drainage should be instituted along the parietal peritoneum and not between the intestinal loops.

SUMMARY

1. Pain is the chief symptom of the acute abdomen.
2. Sudden onset of pain indicates obstruction of a viscus, strangulation or thrombosis, sudden perforative peritonitis, or gas colic.
3. Intermittent colicky pain indicates obstruction

tion of a viscus, strangulation, intermittent gushes from a perforation, gas colic, or enterocolitis.

4. Steady increasing pain indicates thrombosis, distention, inflammation or peritonitis.

5. Tenderness and muscular resistance indicate inflammation or distention of a viscus.

6. Rigidity indicates peritonitis.

7. Loud peristaltic noises indicate obstruction of the bowel or enterocolitis.

8. The striking tinkle indicates obstruction.

9. Diarrhea indicates intussusception or enterocolitis.

10. Distention of the abdomen indicates paralytic ileus, late obstruction of bowel or late peritonitis.

11. Vomiting had better be disregarded as it may be present in any condition and does not differentiate except when fecal, and then it is too late.

12. Gas colic and enterocolitis are the only two medical conditions to be distinguished from the acute surgical ones. Gas colic can be distinguished from bowel obstruction by the absence of small bowel gas on the scout film. Enterocolitis can be distinguished by diarrhea.

13. Only surgical lesions of the gallbladder, ureters and salpingitis can be temporized with, and only under careful observation.

14. A cathartic is absolutely contraindicated in the presence of abdominal pain.

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EXTRA-OCULAR MUSCLE PARALYSIS FOLLOWING SPINAL ANESTHESIA*

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SPINAL anesthesia for both major and minor surgical procedures below the clavicles has been in use since the beginning of this century, but it has remained for the development of less toxic derivatives of cocain and the introduction of ephedrin to combat the fall in blood pressure to make this type of anesthesia preferable in most instances to the older types of inhalation anesthesia, and thus to popularize it. Complications are rare. A varying degree of circulatory collapse is the earliest one to appear, and probably the most common. The percentage of lung complications, nausea, vomiting and gas pains is definitely lower than is found with inhalation anesthesia. Occasionally postoperative headache is noted similar to the well known spinal puncture headache.

Spinal anesthesia has, however, brought with it one complication that is of especial interest to the ophthalmologist, namely, extra-ocular muscle paralysis. In reviewing the literature, it appears that postoperative palsies are limited almost without exception to the eye muscles. Levine,¹ who has recently published a most excellent monograph on this subject, refers to Blatt,² who reviewed the histories of eighty-eight cases and found the trochlear nerve involved in four instances and the oculomotor in six. The remaining seventy-eight involved the abducens, and eighteen of the seventy-eight were bilateral. The interval between the anesthesia and onset of symptoms varied from three days to three weeks. In a large majority of the cases the paralysis disappeared in one to three weeks; in a few it lasted from four to nine months, and in one persisted sixteen months.

From the service of Dr. Babcock, Reber,³ in 1910, reported five cases of abducens paralysis in a series of 2,000 spinal anesthetics.

No satisfactory reason has been established for the singling out of the extra-ocular muscles as candidates for this peculiar post-anesthetic paresis, nor for the special vulnerability of the ex-

ternal rectus as compared to the other muscles. It is to be noted that the paralysis is often accompanied by other symptoms—photophobia, headache and dizziness appearing rather commonly in case reports, while backache, vomiting, hallucinations, neuroses and tetanic contractures have been occasionally observed. Babcock⁴ feels that the cause is a mild infection from the injection of contaminated solutions. He observed that the five cases reported from his service by Reber in 1910 followed the use of imported ampules of tropococaine and stovaine, and states that since discontinuing the use of these ampules he has had no cases of ocular paralysis in the past eighteen years. Evans⁵ also feels that the agent is a fault in administration technic, with a resulting meningismus or low grade meningitis. Blanluet and Caron⁶ suggest an elective toxic action of the drug, a localized hemorrhage, or a mild meningeal infection. Ricci⁷ reported a case with a past history which made him feel the intraspinal injection had stirred up an old chronic serous meningitis. Blatt believes that a neurotic or functional background is a predisposing factor.

There can be little question but that the injected drug often diffuses in appreciable concentration as high as the base of the brain. North and Ferguson, in some experimental work on dogs which has not as yet been published, have shown by the use of dyes that the spinal anesthetic agent frequently reaches the medulla. Thyroid and mastoid operations, even tonsillectomies, have been successfully performed under spinal anesthesia. Anesthesia levels including the chin and lower lip have been reported.

The fact that the paralysis occurs more often with stovaine than with novocaine appears significant. Sollmann⁸ states that stovaine is definitely more toxic and very slowly broken down and excreted as compared to novocaine. To me this emphasizes the elective toxic action as the causative agent. As to the peculiar affinity for the sixth nerve, it is to be remembered that the abducens

*From the Duluth Clinic. Presented before the St. Louis County Medical Society, December 11, 1930.

nerve occupies a very superficial position in relation to the fourth ventricle which communicates directly, through the foramina of Luschka and Magendie, with the subarachnoid space into which the anesthetic is injected.

Koster and Weintrob⁹ call to attention the animal experiments of Van Lier,¹⁰ who demonstrated swelling of the nucleus of the ganglion cells after spinal anesthesia, and suggest a possible degeneration of the ganglion cells as a cause of abducens paralysis.

If the paralysis is due to a mild meningitis, it would appear that strabismus should be a much earlier and more common symptom of specific meningitis. It has also been my observation that strabismus, when it is seen in a specific meningitis, is usually divergent, while the usual type following spinal anesthesia is convergent.

I wish to present two cases of unilateral abducens paralysis following spinal anesthesia. The first is very characteristic of the short course and rapid, unaided recovery which usually occur in this condition. The second has proved very disturbing—both to the patient and to us.

Case 1.—Mrs. E. W., white, aged 46, was given spinal anesthesia for a diagnostic curettage on September 18, 1930. One hundred mgm. of novocain were injected, and ephedrin was given simultaneously to maintain satisfactory circulatory tone. The operation and post-operative recovery were uneventful, and the patient was discharged from the hospital on the fourth day. On the thirteenth day after operation, the patient suddenly developed diplopia, accompanied by slight photophobia, vertigo, and headache. Examination showed a paralysis of the right external rectus muscle. Eye movements otherwise were normal, and the vision of each eye was 20/20. There was no past history of strabismus. The patient was given a good prognosis without being too specific as to intervening time. Therapy consisted simply of covering one eye alternately for half day periods to relieve the diplopia. On the thirteenth day the paralysis had entirely disappeared, and ocular rotation was complete. The patient has had no further trouble.

Case 2.—Mrs. L. T., white, aged 42, was operated upon for fibroids on May 20, 1929. A hysterectomy and appendectomy were performed. One hundred and fifty mgm. of novocaine were injected intraspinally, and ephedrin given hypodermically as in the preceding case. The operation was uneventful. Convalescence was a

little slow. On the twelfth day postoperatively the patient developed diplopia, and examination showed complete paralysis of the left external rectus muscle. Shortly after this, the patient left the city, and we were unable to study and observe her further. However, the diplopia continued. A recent examination at her home showed a persisting strabismus. However, she states that the diplopia is no longer constant, and with the right eye covered she is able to rotate the left eye laterally about twenty degrees. The paralysis has now persisted for seventeen months. The patient is naturally rather discouraged and informed me that a doctor she had consulted while out of town had advised a muscle shortening operation. However, I feel that there has been some improvement, and believe that the patient should wait another six months at least before considering operation.

CONCLUSIONS

1. Extra-ocular muscle paralysis is a rare complication of spinal anesthesia, but must nevertheless be kept in mind constantly by the surgeon and ophthalmologist.
2. The etiology has not yet been definitely established.
3. The onset of symptoms varies from three days to three weeks.
4. In a large majority of the cases the symptoms clear up spontaneously within three weeks.
5. The treatment should be extremely conservative, and muscle operation certainly should not be resorted to under eighteen months.

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ALLERGY, ANAPHYLAXIS AND HYPERSENSITIVENESS*

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ALLERGY, which means altered reactivity, is a term introduced by Von Pirquet and Schick²⁰ at the time they were studying serum sickness, a condition which exists in many individuals after receiving therapeutic serums. Doerr⁷ later used the term to apply to all phenomena of hypersusceptibility in animals and in man, and Zinsser²³ also was in favor of using the word allergy to designate this interesting field of medicine. We find, however, under the general heading, allergy, the existence of a great deal of confusion when any attempt is made to classify and correlate the various experiments with animals by numerous workers and the clinical observations of many physicians.

The terms anaphylaxis, allergy and hypersensitiveness are used interchangeably in the medical literature. An effort has therefore been made at this time after a careful survey of the reports of some of the leading observers in this field to present a classification or outline with the hope that it will be of some value in the diagnosis and possibly in the prognosis and the treatment of allergic conditions.

CLASSIFICATION OF ALLERGY

I Anaphylaxis or anaphylactic hypersensitiveness

- A. In animals—experimental
- B. In man—anaphylactic shock in a previously sensitized individual
- C. Drug anaphylaxis in man

II Human or natural hypersensitiveness

- A. Serum allergy (or sickness)
- B. Drug allergy (or idiosyncrasy)
- C. Atopy or atopic hypersensitiveness
 - 1. Eczema
 - 2. Allergic coryza due to
 - a. Inhalants
 - (1) Animal emanations
 - (2) Pollens (hayfever or pollinosis)
 - (3) Powders and perfumes.

- b. Foods and drugs
 - c. Bacterial products of infection
- 3. Bronchial asthma due to
 - a. Inhalants
 - b. Foods and drugs
 - c. Bacterial products
- 4. Other conditions which are still questionable
 - a. Urticaria, and some forms of dermatitis and pruritus
 - b. Food allergy
 - c. Allergic migraine
 - d. Purpura (Henoch's)
 - e. Some cases of epilepsy
- D. Serum and drug shock in the atopic individual

III Hypersensitiveness in infection

- A. Bacterial allergy or hyperergia. Certain manifestations in the following diseases:
 - 1. Tuberculosis
 - 2. Rheumatic fever
 - 3. Scarlet fever
 - 4. Nephritis
 - 5. Lobar pneumonia
- B. Fungous and parasitic infections may be accompanied by allergic reactions

The first large division under allergy is anaphylaxis or anaphylactic hypersensitiveness. This subject has been carefully reviewed and defined by Wells.²¹ He states that much confusion exists in the literature because of the loose use of the term anaphylaxis to cover a multitude of conditions. In order to have anaphylaxis we must have the animal sensitized by a substance called an antigen which is a soluble protein foreign to the circulating blood of the animal and capable of producing immune bodies in the blood of the animal when injected. These immune bodies are called antibodies and they reach their peak of production about 7 to 10 days, or more, after the injection of the antigen. Then when the antigen is reinjected there is a specific union of the antigen with the antibodies in the tissues, giving rise to an anaphylactic reaction or shock.

*From the Allergy Clinic, Department of Pediatrics, University of Minnesota.

In true anaphylaxis, the non-striated muscle, especially the uterine muscle, from a sensitized animal will if removed from the body and placed under suitable conditions be found to give strong contractions when brought in contact with even very dilute solutions of the specific antigen. Furthermore, the state of sensitivity can be passively transferred in many cases to another animal. Then, too, in anaphylaxis the observation has been made that there is a loss of sensitivity after anaphylactic shock if the animal survives. This is the refractory period during which there exists a condition of specific desensitization.

Up to the present time, there is no conclusive evidence that would indicate that heredity plays any part in anaphylaxis. Monkeys and man are hard to sensitize when a comparison is made with such animals as the guinea pig, rabbit and dog. This means that only a small proportion of the population are sensitized when receiving a foreign serum such as tetanus or diphtheria antitoxin.

Occasionally an individual lends himself to an easy sensitization, and then upon receiving the second injection in the form of some therapeutic serum he goes into true anaphylactic shock, especially if the injection is made intravenously. Like an animal, he becomes desensitized after this reaction, although sensitivity may gradually return.

Desensitizing the anaphylactic sensitive individual before the administration of serum is rather difficult. Larson¹² states that it can be accomplished if a small amount of the preparation (antitoxin) is injected intravenously every twenty minutes, or intraperitoneally every four hours, or subcutaneously every twenty-four hours. Injecting a small amount of the material subcutaneously and waiting only one-half hour is not safe.

Drug anaphylaxis in man includes both the local and systemic reactions to various drugs. Wolff-Eisner²² thought that these reactions might be produced by the blood or tissue proteins altered by the chemical which the individual received. These altered protein compounds act the same as foreign proteins and are capable of sensitizing man or animal in some cases.

Before leaving anaphylaxis it may be of interest to note that it is easier to produce anaphylactic shock if the hydrogen ion concentration of the blood is shifted to the acid side of the normal

range and kept there. A shift to the alkaline side makes it more difficult to have an anaphylactic reaction.

Next, the second division of allergy (see classification) may be considered. Human or natural hypersensitiveness is of special interest to the clinician and first consideration will be given to serum allergy. This condition was carefully studied by Von Pirquet and Schick and is quite common. About five to fifteen days after the administration of a serum there appears an urticarial eruption or rash with or without fever, joint pains and general prostration. The reaction is thought to be caused by an interaction between the antigen and the antibodies which have been produced. In this way there is a close connection with anaphylaxis and some observers have called it a delayed anaphylactic reaction, but others have stated that there is no conclusive evidence of the antigen-antibody union and the condition is not anaphylactic.

In regard to drug allergy, some chemicals are capable of producing symptoms similar to those found in serum allergy. For example the chemical compound, phenyl-ethylhydantoin (commonly called nirvanol) is used in the treatment of chorea, and in many individuals it gives rise to a typical series of symptoms. After about 7 days of administration, there is a sudden onset of fever and about two days later an eruption appears. The patient is quite uncomfortable. Blood examination may reveal an increased number of eosinophiles.

Human hypersensitiveness also includes that group of allergic diseases to which Coca⁵ gave the name atopy, which means "a strange disease." From this, the term atopic hypersensitiveness has been derived. Coca included all those clinical forms of hypersensitiveness which occur so far as is known only in human beings and which are subject almost entirely to inheritance.

The clinical forms included in this category are hayfever and asthma, and possibly eczema. More information may lead to the addition of such conditions as urticaria, and some forms of dermatitis and pruritus, food allergy, allergic migraine, purpura (Henoch's) and some cases of epilepsy.

The substances to which the atopic individual responds in an abnormal way are called atopens, and they may be proteins or non-proteins. They react with specific bodies found in the blood of

nearly all atopic persons. Whether these bodies which have been called atopic reagins are true antibodies developed immunologically under antigen stimulation or physiological products like the natural hemo-agglutinins and hemolysins is not known.

In atopic hypersensitiveness, heredity seems to play an outstanding part. Coca states that by the tenth year of life atopic symptoms have appeared in 72 per cent of the atopic offsprings under a bilateral hereditary influence, in 35 per cent of those subject to a unilateral influence, and in only 20 per cent of those with a negative family history. Bray³ says that asthma and related conditions are transmitted as a Mendelian dominant. The greater the heredity the earlier are symptoms manifested and the earlier in life the individual becomes sensitive the greater the tendency to multiple sensitization.

The atopic individual may respond with a marked reaction when receiving a therapeutic serum, especially if it is given intravenously. The same thing may occur if certain drugs such as the arsenicals are given to these people. This phenomenon may be referred to as serum and drug shock in the atopic individual (see classification). According to Lamson¹¹ this is not due to anaphylaxis although clinically the shock can hardly be differentiated from a true anaphylactic reaction in a previously sensitized person.

Desensitization of the atopic sensitive individual with the subsequent injection of the foreign substance is, as in anaphylaxis, not such an easy procedure. The most concentrated serum obtainable should be used and first injection should be made subcutaneously. According to MacKenzie and Hanger¹⁴ it should not be more than 0.01 c.c. If no symptoms develop, the dose may be doubled every thirty minutes until 1 c.c. is given. Then the next injection may be 0.1 c.c. intravenously, and every twenty minutes thereafter the intravenous dose may be doubled until the required amount of serum has been given.

It may be interesting to note at this time that in the atopic individual any drug or diet which tends to shift the hydrogen ion concentration of the blood to the acid side within the normal range decreases in some cases the tendency to allergic reactions. This is just opposite of the conditions which have been observed in case of anaphylaxis.

There has, however, been an effort made to consider anaphylaxis in the animal and hyper-

sensitiveness in man as due to the same fundamental cause, with man responding not exactly in the same way as the animal because he is a more highly differentiated subject in which the allergic mechanism plays its part.

Topley and Wilson¹⁰ state that the differences between anaphylaxis and human hypersensitiveness are only the result of an incomplete study and quote Doerr as pointing out the fact that we have studied natural hypersensitiveness only in man and anaphylaxis only in the experimental animals, so that it is at least possible that the differences which have been noted are referable in a large part to the restricted universe selected for study.

Ratner and Gruehl¹⁶ have since reported experiments in which they have been able to show that the blood of a human asthmatic and the blood of an asthmatic guinea pig can passively sensitize the normal human skin and normal guinea pigs. From this they believe that their results indicate that hypersensitiveness in man and anaphylaxis in lower animals are fundamentally dependent on a common anaphylactic antibody and that the distinction between anaphylactic antibody and the atopic reagin is untenable.

Finally the third division (see classification) may be briefly discussed. Hypersensitiveness to infection represents another interesting field for further investigation. In the first place, bacterial allergy or hyperergia indicates an increased capacity of the tissues to react to the bacterial products of living organisms localized in some part of the body, or to react to the disintegration products of the dead organisms or of the infected tissues in the focus. The allergic state may in certain instances be regarded as an index of resistance, a thing which some believe to be true in the case of tuberculosis. Krause¹⁰ and Pottenger¹⁵ have considered allergy as representing part of the protective mechanism of the tuberculous infected individual.

Recently, however, Rich¹⁷ states that in spite of the fact that bacterial allergy operates to destroy the invading organisms and plays an accessory rôle in certain infections, the present state of information in regard to tuberculosis does not warrant the use of the term allergy to indicate resistance in tuberculosis. Branch and Cuff,² after studying carefully the allergic, anaphylactic and immune reactions in guinea pigs following inoculation with heat-killed tubercle bacilli, con-

clude that allergy and anaphylaxis in tuberculosis are independent phenomena, and immunity may be present without allergy. Furthermore they believe that the development of allergy appears to be interrelated with the process of caseation.

Some observers believe that an allergic reaction takes place in acute rheumatic fever. The streptococcus present in a focus in the human body sensitizes certain tissues, and the joint manifestations of rheumatic fever represent a maximal response of the hypersensitized tissue to a minimal stimulus. Swift and Derick,¹⁸ Birkhaug,¹ Clawson,⁴ and others have studied the possibilities of the application of the theory of allergy to the bacteriological problems of rheumatism.

Cooke⁶ believes that certain of the manifestations present in scarlet fever may be explained on an allergic basis. Longcope¹³ and his colleagues⁸ have found positive skin tests to the streptococcus in some individuals suffering with acute glomerular nephritis. This might indicate that the kidney manifestations were an allergic response on the part of kidney tissue highly sensitized to the streptococcus which might be localized in a distant focus, such as the tonsil. Then, too, lobar pneumonia caused by types one and two pneumococcus has been considered in part as an allergic phenomenon.

Certain fungus and parasitic infections are accompanied by allergic reactions. For example, it has been shown that with an extensive thrush infection of the gastro-intestinal tract there may be a skin eruption resembling a severe weeping eczema. This condition has been considered by many as an allergic phenomenon and this same opinion is held by Henrici.⁹

With this classification of allergy the author has made no attempt to discuss in detail the various divisions and subdivisions but only has offered a few remarks in explanation. The field of allergy with all its phases is certainly of great

interest, and it is hoped that further work in this field will lead to a simpler classification. At the present time a review of the writings of investigators does not permit this.

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CASE REPORTS

SUBCUTANEOUS EMPHYSEMA FOLLOWING ASPIRATION OF FOREIGN BODY

REPORT OF THREE CASES*

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and

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Forbes, in 1926, described the preoperative occurrence of emphysema of the neck and thorax of a child, aged two years and nine months, three days after aspiration of a portion of nut. Except for this report, we have not been able to find any reference to a similar complication. In a comprehensive article on the symptoms and signs of foreign bodies in the bronchi, McCrae stated that the escape of air from the lung into the mediastinum is not uncommon following aspiration but he did not mention the possibility of the development of subcutaneous emphysema. Because of the apparent rarity of this complication, the following cases are presented.

Case 1.—A boy, aged six years, aspirated a small metal paper clip, January 19, 1930. Five hours after aspiration, there was dyspnea and substernal pain with elevation of temperature to 101.8° F. Roentgenograms of the thorax revealed the foreign body in the right bronchus with partial atelectasis of the right lung.

The child was brought to The Mayo Clinic for examination twenty-one hours after the foreign body had been aspirated and in addition to the roentgen-ray evidence of the foreign-body in the lung with partial obstruction in the bronchus, there was a moderate amount of subcutaneous emphysema over the anterior portion of the thorax and neck on the right side (Fig. 1). Bronchoscopic examination revealed the foreign body in the right bronchus and it was removed without difficulty (Fig. 2). The following day, the emphysema had disappeared, and the temperature had returned to normal. The child was dismissed from observation January 23. A letter received from the parents a year later stated that the child was perfectly well.

Case 2.—A boy, aged three years, had been well until the evening of December 24, 1930, when he choked while eating peanuts, but because he was held upside down at the time of the accident and several pieces of nut came out of his mouth it was assumed that none was aspirated. Following this, he was rather listless and had a little cough and fever until the evening of January 4, 1931, when marked swelling of the head and neck occurred after a severe coughing spell. These paroxysms of coughing recurred with increasing swelling of the head and neck and a physician was con-

sulted. Evidence of obstruction in the right main bronchus with marked subcutaneous emphysema was found. Roentgenograms of the thorax revealed an emphysematous condition of the upper portion of the right



Fig. 1 (Case 1). A paper clip in the right bronchus. Emphysema in the tissues of the neck may be noted.



Fig. 2 (Case 1). Paper clip removed at bronchoscopy.

lung with atelectasis of the lower portion, air in the pericardial cavity, and pronounced emphysema of the tissues of the head, neck, upper portion of the thorax and arms (Fig. 3).

*From the Division of Medicine, The Mayo Clinic, Rochester, Minnesota. Submitted for publication February 18, 1931.

The child reached the clinic for treatment late in the afternoon of January 5, 1931, in a critical condition. A bronchoscopic examination was made immediately

after the development of the swelling. Almost complete obstruction to the passage of air into the right lung, and marked subcutaneous emphysema of the tis-

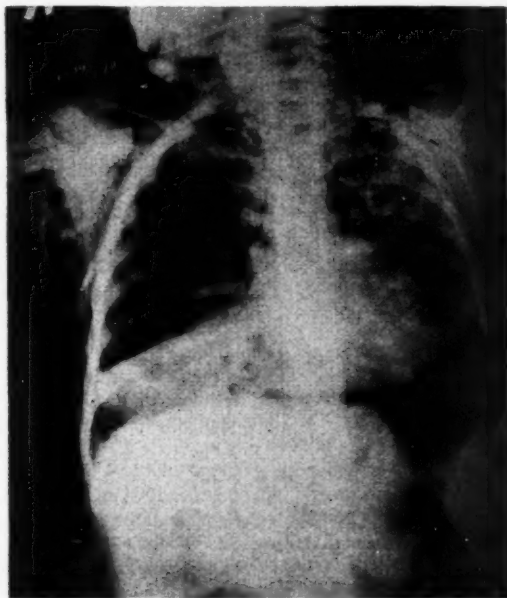


Fig. 3 (Case 2). A peanut in the right main bronchus, with emphysema of the upper part of the right lung and atelectasis in the lower part, marked subcutaneous emphysema of the tissues of the neck and thorax and apparent pneumocardium.

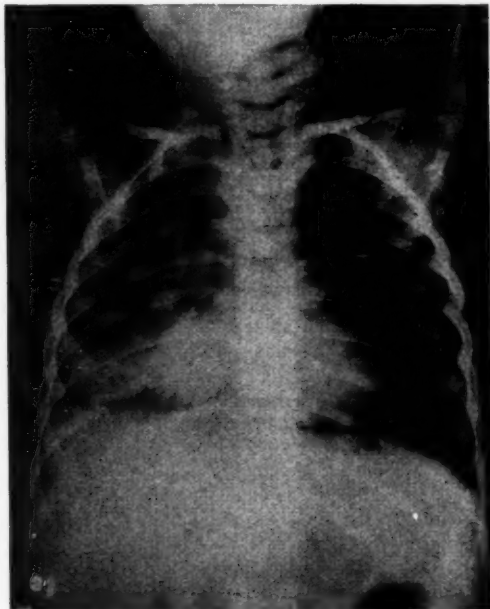


Fig. 4 (Case 2). The thorax after removal of the foreign body. The emphysema of the upper portion of the right lung is no longer apparent; the infiltration of the lower portion of the lung is greatly reduced, and there is much less air than before bronchoscopy.

and a peanut kernel was found in the right main bronchus. The foreign body was grasped with forceps and, as it was too large to be removed through the bronchoscope, it was brought up to the end of the tube and was withdrawn with the tube and forceps. Examination of the foreign body, after removal, disclosed that it consisted of a portion of a kernel only, but as air now entered both lungs normally, it was considered inadvisable to reintroduce the bronchoscope because of the danger of producing laryngeal edema. The child was admitted to an oxygen chamber immediately after bronchoscopy, and the following morning the remainder of the nut was expelled spontaneously. Recovery was uneventful and the patient was dismissed January 9. At the time of dismissal, there was scarcely any air in the subcutaneous tissues, there had been marked restoration of the lungs to normal and the amount of air in the pericardial cavity had greatly diminished (Figs. 4 and 5). In every other respect, the child seemed well. A letter from the parents two weeks later stated that he was in good health.

Case 3.—A girl, aged two and a half years, aspirated a peanut kernel January 19, 1931. She seemed comfortable for two days, when fever and cough developed and it was thought that she had pneumonia. January 24, swelling of the upper part of the thorax and neck developed that gradually increased with each spell of coughing. The patient was brought to the clinic soon

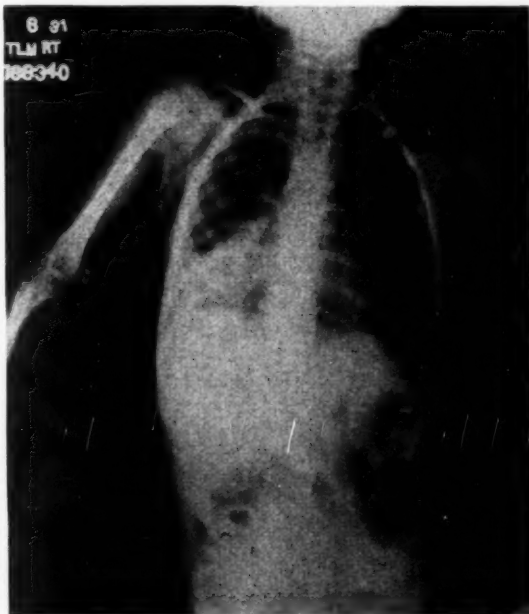


Fig. 5 (Case 2). Air is shown extending into the tissues of the forearm.

sues of the head, neck and upper portion of the thorax were found.

It was considered unwise to delay removal of the foreign body and roentgenograms of the thorax were not made. Bronchoscopic examination disclosed a large portion of peanut kernel in the right main bronchus and it was removed. The child was placed in an oxygen chamber immediately after the removal of the foreign body, but in spite of this it was necessary to open the trachea after twenty-four hours. There was practically no reaction associated with the tracheotomy and after five days the tube was removed. The patient was dismissed February 2. The emphysema had disappeared completely, and the child seemed perfectly well.

COMMENT

In the first case, it was assumed that the sharp point of the paper clip had been forced through the wall of the bronchus during a paroxysm of coughing and that this had permitted the escape of air into the mediastinum with the subsequent development of subcutaneous extravasation.

In the second and third cases, the foreign body evidently was of just the proper size to permit the passage of air into the distal bronchi on inspiration, but to have closed the bronchus on expiration. This resulted in obstructive emphysema and air was forced from a ruptured emphysematous bleb on the surface of the lung into the mediastinal structures and then into the subcutaneous tissues. In the second case, it is very difficult to explain the apparent presence of air in the pericardial cavity.

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OMENTAL CYST IN A CHILD*

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The following case I wish to report, with a brief discussion, because the condition is rather uncommon, and the diagnosis is unusually difficult. This omental cyst, which we did not diagnose, presented the unusual feature of rupturing, which made the picture still more obscure.

Ladd in the *American Journal of Diseases of Children* for 1926 briefly surveyed the literature and up to that date only about forty-five cases had been reported.

The condition is usually diagnosed as tuberculous peritonitis of the ascitic type, ascites, hydatid cyst, ovarian cyst, cystic kidney, mesenteric cyst or enteric cyst. When the cyst has ruptured, as in this case, the

most likely diagnosis is primary peritonitis or perforated appendix with peritonitis. At least the picture is one of an acute surgical abdomen.

By way of differentiation, patients with large cysts usually present dullness over the entire front of the abdomen. A bismuth meal in the intestinal tract might show the fluid to be accumulated in front of the intestines. If paracentesis reveals a chylous fluid containing broken down red blood cells, it should suggest a lymphatic cyst, which might be of omental or mesenteric origin.

A cystoscopic examination should rule out a cystic kidney.

Bimanual examination, with one finger in the rectum, should rule out small ovarian cysts, especially in young children.

Negative tuberculin tests should rule out tuberculosis.

If the cyst is very mobile it should bring to mind the possibility of an omental cyst.

The treatment of this condition is surgical, the results should be good, and the risk slight.

Halsted reported, in the *Johns Hopkins Hospital Bulletin* of 1920, a case of omental cyst. The patient was a female child, two years of age, who had been tapped for ascites. The point which he wished to stress was that whenever a child comes under observation with abdominal distension, the possibility of lymphatic cyst should be borne in mind. He saw his patient again at the age of twenty-four, married and in good health.

CASE REPORT

The patient, a female child, three and a half years of age, when last seen by Dr. E. F. Robb, about one year ago, was a healthy, well developed, well nourished, normal child. On January 8, 1931, about 3 p. m., the child began to complain of abdominal pain, which the mother did not think was very severe. About three hours later the child vomited, the only time she did vomit during the illness. She ate supper that evening. Later the mother gave her an enema with constipated results. The child continued to complain of abdominal pain until about midnight, then fell asleep and slept very well for four to five hours. On the morning of the 9th, the child still complained of abdominal pain and refused breakfast and lunch. About 2 p. m. the pain became very severe. Two hours later the temperature was 104 degrees and her abdomen presented a board-like rigidity.

Tentative diagnosis: Perforated appendicitis with generalized peritonitis.

Operation: Upon opening the abdominal cavity a large amount of light green fluid (estimated at about 1,000 c.c.) was encountered in the peritoneal cavity. The peritoneum was moderately inflamed and I thought at first that we were dealing with a primary peritonitis. Upon further examination a large mass was felt, which at first appeared to be a large intussusception with gangrenous bowel. Upon more complete exposure it was found that the mass was a large multilocular cyst contained within the great omentum. When the cyst was delivered outside the abdomen it was about as large as an infant's head. One of the cysts had ruptured, ac-

*Read before Janney Children's Hospital Staff, Minneapolis, March 3, 1931.

counting for the free fluid and the peritonitis. The cyst originated high on the omentum, close to the transverse colon. The cyst was partially extirpated, the omentum clamped at the base and the cyst very easily removed. The gallbladder, stomach, and duodenum appeared normal. The appendix was removed. No cysts were seen in the pelvis. The abdominal wall was closed in layers, with a Penrose drain to the pelvis.

Upon opening the remaining cyst perhaps another quart of dark, greenish fluid was obtained, which chemically proved to contain blood pigment.

Postoperative diagnosis: Multilocular omental cyst.

Pathological report, by Dr. J. S. McCartney: The tumor of the omentum is a collapsed cystic mass eighteen by six and five-tenths by three and five-tenths centimeters; it is composed chiefly of two large cysts and

one small one. One of the large cysts has a hemorrhagic lining. The lining of the other large cyst is pale. The large cysts have trabeculated inner surfaces. In the omentum at a point about five centimeters from the main mass are two other cysts, each about one centimeter in diameter. Section of the cyst with the hemorrhagic wall shows an indistinct endothelial lining and a marked subacute inflammation beneath this endothelium. Section of the wall of the pale cyst shows very definite endothelial lining, but no evidence of inflammation. No epithelium is found in any of the sections. The diagnosis is cyst of the omentum probably of lymphatic origin.

These cysts are lymphatic in nature, and probably congenital in origin.

MEDICAL ARTS BUILDING.

THROMBOPLASTIN HYPODERMIC-SQUIBB OMITTED FROM N.N.R.

Thromboplastin Hypodermic-Squibb is a sterilized extract of cattle brain in physiologic solution of sodium chloride intended for hypodermic injection to increase the coagulability of the blood. The Council on Pharmacy and Chemistry first accepted thromboplastic substances in 1915. Since then little or no additional evidence has developed for the value of these preparations: their intravenous use almost certainly presents dangers, and the Council has become convinced that there is no satisfactory evidence for their effectiveness when injected subcutaneously. In view of this the Council decided, unless new evidence should appear,

not to include hereafter in New and Non-official Remedies any preparation of this type except for local application. Since Thromboplastin Hypodermic-Squibb is intended for hypodermic or subcutaneous injection, E. R. Squibb & Sons were informed of the action of the Council and asked to submit evidence in support of the value of the hypodermic administration of thromboplastic substance. The submitted evidence did not permit a revision of the Council's conclusion that the hypodermic or subcutaneous administration of Thromboplastin Hypodermic-Squibb or of other thromboplastic substances is not therapeutically valuable and therefore omitted the Squibb preparation from New and Non-official Remedies. (Jour. A. M. A., February 21, 1931, p. 613.)

PRESIDENT'S LETTER

IN an association like ours, with its multiple interests partaking equally of scientific advancement and public obligations, some liaison officer between the individual society and its various official activities is highly desirable.

We have such liaison officers in our councilors. They know the business of the organization intimately. They can supply the color and intent back of the dry, uncolored reports of official conferences and delegates' meetings that are all that otherwise reach remote county societies. They could be used to knit us all much more intimately and solidly together in spite of our scattered far-flung situation. The question is, why don't we use them?

When the councilors met at the May meeting of the Association in Minneapolis, several reported there that their councilor duties were curiously restricted. They could not keep their districts properly informed. They could not suggest or advise. They were not so invited. Of course the reason was not that the societies in question disliked inviting councilors to their meetings. Probably the societies in question entirely overlook the fact that there are councilors in their districts.

The House of Delegates meeting in Minneapolis was packed to overflowing with important business, vital business about which every member of the association should have an intimate knowledge. House of Delegates' decisions and reactions to decisions, this year and the next and the next, are going to affect the practice of medicine very vitally in these changing troublous times in Minnesota. Are all of the members of our great organization going to be satisfied with the clipped, official accounts of resolutions passed and committee reports accepted?

The councilor of your district took an active part in the transaction of the business of the last meeting. Invite him in to tell you about it. Never mind how busy he is. When he accepts his important post he is prepared to make personal sacrifices in the interest of the profession. He will be glad if you call on him. It will be eminently worth your while.

Witness the report of one of the new members of the Council, O. J. Hagen of Moorhead, submitted at the May Council meeting. Dr. Hagen had more invitations to visit societies in his district than he was able to accept, since several of the dates conflicted. Since early in 1931, however, when he took office, he visited the Clay-Becker Society, the Park Region Society and the Red River Valley Society.

"In Clay-Becker there is manifested a healthy coöperative interest in both the scientific and public aspects of the medical profession," Dr. Hagen reported. "A special meeting was called to discuss the legislative problems of the association that arose during the legislative session so that a local viewpoint might be intelligently expressed. This showed a wholesome trend. It helps so much to crystallize the profession into a compact unit of thinking and performance."

Of the Park Region meeting, Dr. Hagen said: "The scientific meeting was of a high order; the discussion on increasing the membership sensible; the fine spirit of comradeship encouraging."

Of the Red River Valley Meeting: "These giants of the North have always given a large contribution to medicine in its highest sense; they are intensely alive to problems of legislation and public health."

"I am confident that the Eighth District is in a healthy state of cultivation and that they will continue to make their contribution in the future as in the past a very, very impressive one."

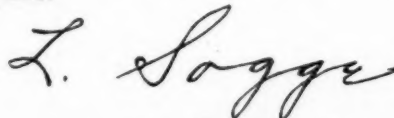
Here is an example of a valuable relation between a councilor and his district. It should prevail everywhere throughout our association.

And don't forget that there is another new and particular service your councilor can perform for you this year. Two new studies, one on medical economics and the other on industrial practice, have been added to the state program for the new year. The time has come, as you know, in the practice of medicine in America, when the physician can no longer leave it to chance or the lay economist or the ambitious welfare worker to determine upon reforms in the system of caring for the sick.

These studies undertaken by our own members will provide us with authentic reliable information about conditions in our own state, information that must be the basis of all the future public policy of our societies.

The two committees who will carry on the work were appointed by the Council. The Council and therefore your councilor will be constantly informed on their findings.

Why wait to get such information second hand?



President
Minnesota State Medical Association.

EDITORIAL

MINNESOTA MEDICINE

Official Journal Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine, and Minneapolis Surgical Society.

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Subscription Price: \$3.00 per annum in advance. Single Copies 25c. Foreign Countries \$3.50 per annum.

Vol. XIV July, 1931 No. 7

THE EARLY DETECTION OF TUBERCULOSIS

While the mortality from tuberculosis has been halved in the past decade, it is common knowledge that there has been little or no reduction in this mortality among girls in the teen age. The infectiousness of the disease, mode of transmission, and the frequency of childhood infection are well understood, and yet prevention of infection is far from satisfactory.

In the interests of early detection of tuberculosis, the National Tuberculosis Association, of which the Minnesota Public Health Association is a component part, is advocating universal in-

vestigation of school children by means of the Mantoux tuberculin test and X-ray examination of the lungs in positive reactors. This presupposes a practically 100 per cent accuracy for the Mantoux test and a universal agreement as to the interpretation of lung shadows in children. It is perhaps needless to state that a diagnosis of the presence of active tuberculosis which depends on these two methods alone is unreliable. History, physical examination, and sputum analysis are still indispensable.

Groups of school children in Minnesota have been and are being investigated by various local agencies to determine the incidence of positive Mantoux reactors and undetected tuberculosis. An occasional case of active tuberculosis has been discovered in various localities.

The importance of picking up unsuspected active tuberculosis by every possible method cannot be over-estimated. Even though these surveys tread on the toes of private practice, the practitioner will not object to such a method if it is the only practical way to detect unrecognized cases. An individual with undetected active pulmonary tuberculosis is nobody's patient at a time when diagnosis is all-important. Whether the surveys mentioned should be extended to provide for universal free examinations for tuberculosis is open to some question.

Some doubt has been expressed as to the value of a positive tuberculin reaction in selecting individuals for further investigation. Eberson, Delprat, and Wolff,* while recognizing the value of tuberculin and the X-ray in the diagnosis of pulmonary tuberculosis, concluded from a study of groups of positive and negative tuberculin reactors that tuberculin cannot be counted on to exclude the non-tuberculous. The authors report, too, that single findings of hilus calcification, increased lung markings, enlarged bronchial lymph nodes and peribronchial infiltration as shown by the X-ray plate occurred more often in the group not reacting to tuberculin. Certainly there is no agreement at present in the interpre-

*Eberson, F., Delprat, Jessie P., and Wolff, E.: Suspected juvenile tuberculosis. *Am. Jour. Dis. Child.*, 40:753 (Oct.), 1930.

tation of hilus shadows in childhood.

The manner in which a survey of this sort is conducted is very important. All human beings are concerned to some degree about their physical well-being—children as well as adults. Perhaps most of us have just a little neurotic tendency. To be told that a skin test shows a tuberculous infection may not be the best thing in the world for many individuals. To be told further that an X-ray of the lungs is advisable because of the skin test and then that the X-ray is not normal (and how often calcified hilus areas are reported) is only too likely to bring out neurotic tendencies. A survey of apparently normal individuals should provide that findings be reported to medical advisors for evaluation. Their significance should be determined in conjunction with the history and physical examination by the attending physician. By this means only will a false diagnosis of tuberculosis be prevented and needless treatment avoided. Who knows but what a positive tuberculin reaction is indicative of a vaccination and of increased resistance to further infection?

"DOC" WILLIAMS

The passing of "Doc" Williams recalls the colorful career of one of Minnesota's prominent physicians. His name will be handed down in the annals of athletic history in connection with his outstanding activities at the University of Minnesota. He was a physician who found time to do more than practice medicine and to do that something well.

A Yale athlete of outstanding ability in track as well as football, he continued his interest in athletics continuously after graduation; as coach to preparatory schools and for a brief period at West Point. When Minnesota with plenty of material but scant football coaching was unheard of in collegiate athletics, he put the university on the football map by developing such all-Americans as Johnny McGovern, James Walker, and Bert Baston.

"Doc" Williams acquired national prominence in football circles through his famous Minnesota shift. He helped organize the American Inter-collegiate Athletic Association and proposed the rule which introduced the forward pass into the game. The same vigor and punch which he instilled into his men he exhibited in his interest in the game, and success was his.

OF GENERAL INTEREST

Dr. A. R. Johnson, formerly of Eveleth, Minnesota, is now located at Isanti, Minnesota.

Dr. O. E. Sarff, formerly located at Baudette and Warroad, is now practicing at Roseau, Minnesota.

Dr. Frank Grawn, formerly of Duluth, is now practicing at Northome, Minnesota.

Dr. Bernard E. O'Reilly has opened offices at 1267 Lowry Medical Arts Building, St. Paul, and is specializing in eye, ear, nose, and throat diseases.

Dr. Donald A. Dukelow after June 15 will be located at St. Charles, Minnesota. Dr. Dukelow was formerly associated with the Mayo Clinic at Rochester.

On May 19, 1931, the following officers of the Minnesota Pathological Society were elected: Dr. J. F. Noble, president; Dr. J. S. McCartney, vice president; Dr. E. F. Bell, secretary-treasurer.

Announcement has been received of the association of Dr. Arthur E. Perley, formerly of the Nicollet Clinic, Minneapolis, with Dr. Harold Swanberg of the Quincy X-ray and Radium Laboratories, Quincy, Illinois.

The offices of the Minnesota State Board of Examiners in the Basic Sciences have been moved from 110 Anatomy Building to 126 Millard Hall, University of Minnesota, Minneapolis. Dr. J. C. McKinley is secretary-treasurer of the Board.

Dr. Ivar Sivertson of Minneapolis was appointed a member of the State Board of Medical Examiners for a term ending May 1, 1938. He succeeds Dr. C. E. Kaine of Morris. The appointment was made by Governor Olson upon recommendation of the State Medical Association.

The following were elected Affiliate Fellows of the American Medical Association at the Philadelphia meeting: S. S. Hall, Minneapolis; L. K. Onsgard, Houston; E. S. Strout, Minneapolis; Chas. A. Van Slyke, Saint Paul; Ed. H. Whitcomb, Saint Paul; Warren Wilson, Northfield; W. F. Wilson, Lake City.

According to a newspaper report, hospitals operated by the Northern Pacific Railway Beneficial Association cared for 33,667 patients in 1930. The total number of hospital and non-hospital cases amounted to 76,089. Hospitals are operated in Glendive, Missoula, Tacoma, and Saint Paul. Some 17,935 patients were treated by the Saint Paul unit.

Dr. Richard E. Scammon, who left the University a year ago to become dean of medicine and biological sciences at the University of Chicago, will return in the fall to be dean of medical sciences, a new position created by the Board of Regents. Dr. E. P. Lyon will continue as dean of the medical school while Dr. Scammon's duties will include stimulating interest in medical science in the other departments of the University as well as in the medical school.

The Millard Memorial Fund being collected by the Minnesota Medical Alumni Association for the erection of a suitable memorial for Dr. Millard's grave at Stillwater, is growing and the response on the part of the profession has been gratifying. Further contributions, however, are desired. Those who have as yet not responded to the request sent out a month ago are requested to send their contributions to Dr. Ralph Creighton, Medical Arts Building, Minneapolis.

Frederick Bass, member of the Engineering faculty at the University, was appointed to succeed Dr. S. Marx White of Minneapolis, and Dr. C. T. Oliver of Graceville to succeed Dr. C. F. Melby of Thief River Falls on the board. Arthur S. Milinowski of Stillwater, a sanitary engineer with offices in St. Paul, was also appointed to succeed L. P. Wolff, also an engineer in St. Paul. The appointment of the engineers was made upon recommendation of engineering societies.

The University Hospital and the Minneapolis General Hospital are each offering a six months' course of training in anesthesia to graduate nurses. One new student is entered at each hospital on the first of February, May, August, and November. Maintenance during the course is furnished.

The course is supervised by Dr. Ralph T. Knight and practical instruction furnished by the chief anesthetist and her assistants. The administration of nitrous oxide, ethylene, ether, and chloroform and the care of patients receiving spinal anesthesia are taught. After two weeks of observation and instruction the student administers anesthesia under supervision for three months.

Formal presentation of the medal offered by the Southern Minnesota Medical Association, for the best scientific exhibit at the meeting of the Minnesota State Medical Association, will take place at Faribault, Minnesota, on August 29, at the meeting of the Southern Minnesota Medical Association.

The award goes to Dr. William P. Herbst of Minneapolis for his exhibit on "A Study of the Motility of the Upper Urinary Tract Demonstrating the Diagnostic Features of Abnormal Motility Syndromes and the Indications of Drug Therapy and Renal Sympathectomy."

Honorable Mention was given to Dr. R. K. Ghormley, Dr. B. R. Kirklin and Dr. E. A. Brav of Rochester for their exhibit, "A Study of Surgical Specimens of the Knee Joint."

OBITUARY

HENRY L. WILLIAMS 1869-1931

Dr. Henry L. Williams, for twenty-two years coach of the University of Minnesota football teams, died June 14, 1931, at the age of sixty-two.

Born July 26, 1869, in Hartford, Connecticut, of English stock, Dr. Williams attended the public schools of Hartford and entered Yale in 1887. As an undergraduate he won his letters in football and track and the all-round track championship in his junior year. In his senior year he was captain of the track team.

After graduation he taught at a preparatory school ten miles from West Point, and besides coaching the preparatory teams went to West Point on Saturday afternoons to coach the Army teams.

Dr. Williams graduated from the medical school of Pennsylvania with honors in 1892 and spent three summers in post-graduate work in Germany.

From Philadelphia he came to Minneapolis in 1900 to become coach of the University track and football squads. In addition he practiced medicine and in 1912 became Assistant Professor of Gynecology, then resigned the following year to devote his spare time to private practice. For eight years "Doc" Williams coached the track teams but continuously acted as head coach of football until 1921, when a full-time coach was demanded.

Following the World War, Dr. Williams became executive in the Veterans Bureau headquarters in Minneapolis and later became District Medical Director for the United States Fidelity and Guaranty Company.

MORE MISBRANDED NOSTRUMS

The following products have been the subject of prosecution by the Food and Drug Administration of the U. S. Department of Agriculture, which enforces the Federal Food and Drugs Act: Antikamnia and Codeine Tablets (Antikamnia Remedy Co.), each containing 2.88 grains of acetanilid with caffeine, sodium bicarbonate and a small amount of codeine. A-No-Mor (A. G. Luebert), capsules containing 3 grains acetphenetidin, some acetylsalicylic acid and caffeine. Sargon (Sargon Laboratories), an alcohol-water solution of sugar, glycerin, extract of ox gall, a bitter drug, small amount of an iron compound, sodium citrate and caffeine. Gauvin's Headache Wafers (J. A. E. Gauvin), containing acetanilid and sodium bicarbonate. Hygem (Vita-Bac Corporation, Bloomfield Laboratories), consisting essentially of an emulsion of mineral oil, a small amount of casein-like material and water, flavored with peppermint oil and containing no viable acidophilus bacilli. Now (R. D. Coulson), consisting essentially of small amounts of menthol, camphor, oil of eucalyptus, licorice, alcohol, glycerin and water. Acquin (Clausen-Zoller Co.), containing acetphenetidin, acetylsalicylic acid and starch. (Jour. A. M. A., January 3, 1931, p. 57.)

« A PAGE FORUM OF THE COMMITTEE ON PUBLIC HEALTH EDUCATION »

"The Literary Digest Picks a Doctor"

Apparently there is still something seriously amiss with public knowledge of the functions of organized medical societies.

A certain C. Houston Goudiss of the New York *Forecast* has some excellent ideas about how to tell a quack when he sees one.

Neither he nor a *Literary Digest* commentator seems to know just how to go about picking an honest medical man.

The *Literary Digest* of May 30, 1931, was so much interested in Mr. Goudiss' ideas as published in the *Forecast* articles that it picked them up bodily, adding certain comments of its own and heading the combination with the caption, "How to PICK A DOCTOR."

Suppose, they say, that you are alone and sick in a big city and there is not even a helpful hotel clerk downstairs to send up the hotel physician. What can you do to get a responsible properly qualified city substitute for the "old family doc" you left behind you?

How do you pick a doctor, in other words, according to the *Digest* and Mr. C. Houston Goudiss?

Well, here's how: you call the Young Women's Christian Association, or the Young Men's Christian Association, the Young Men's Hebrew Society, the local Rotary Club or the nearest hospital.

This last, says Mr. Houston Goudiss sagely, is your best bet because hospitals of any size, in any community, are required by law to maintain certain standards.

You tell by the following signs whether you have got hold of a quack or not: demands for money in advance; claims of a "special system" for all troubles; claims of some secret remedy or cure. All these should make you suspicious, says Mr. Goudiss. They are prima facie evidence of a faker.

The prima facie evidence of an honest regular practitioner is apparently much harder to describe. You must call this or that or the other lay organization to find out about him, or you must put in a claim for attention from some busy hospital.

These two may be taken to possess at least average intelligence and the average amount of information. What is the matter with the public relations of organized medicine, that neither had apparently ever heard of a county medical society?

They know, for instance, that a reputable practitioner must have got his degree from a reputable school; that he will be a member of reputable medical societies. But they know no simple way of checking up on either of these details.

Instead they counsel the sick, in need of more immediate attention, to call up the welfare organizations or a hospital to get their information second hand.

What about the general public if these men are so grossly uninformed?

County medical societies are enlarging and strengthening their organizations as never before. They are adding special committees for this type of public relation, other committees for that. They are more conscious and better equipped to take care of their public obligations than ever before.

Yet a large section of the public still knows nothing of the most fundamental and elementary service the county medical society has to offer—that of identifying and certifying honest physicians and protecting the public against quacks.

"Be suspicious," says the Goudiss article, in conclusion. "If you are sufficiently so, you will not entrust your most valuable possession to a faker. And if you insist upon having the facts you will go far toward the laudable goal of discouraging and eventually ridding our land of quacks."

The medical profession should certainly inform Mr. Goudiss just how it is prepared to assist his laudable campaign for discouraging quacks.

MISCELLANEOUS

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

ST. PAUL NATUROPATH FOUND NOT GUILTY ON
ABORTION CHARGE

State of Minnesota *vs.* Hirst

William H. Hirst self-styled Naturopath with offices at 138 East Sixth Street, St. Paul, was found not guilty on an abortion charge by a jury after five hours' deliberation in the Court of the Honorable Howard Wheeler. The trial was the second one for the offense charged, the first trial ending in a disagreement after the jury had deliberated forty-three hours. The state alleged that the abortion took place on January 5, 1931. Following the defendant's arrest on that charge he entered pleas of guilty to two violations of the Basic Science Law, paying \$500 fine on one charge and receiving a suspended sentence of one year in the Workhouse on the other. The Workhouse sentence was suspended on the condition that the defendant refrain from practicing healing in any manner in this State.

The present trial was conducted by Mr. John A. Pearson and Mr. James F. Lynch, assistants to Michael F. Kinkead, County Attorney. Mr. Brist, representing the State Board of Medical Examiners, reports that the case was very ably and conscientiously tried by Mr. Pearson and Mr. Lynch. The Honorable Howard Wheeler, Judge of the District Court, who presided at the trial, was very fair and impartial in the trial of the case.

MINNEAPOLIS QUACK PLEADS GUILTY TO VIOLATING THE BASIC SCIENCE LAW AND DISTRIBUTING PAMPHLETS ON RESTORATION OF "LOST MANHOOD AND LOST WOMANHOOD"

State of Minnesota *vs.* Ebeling (two cases)

On June 10, 1931, E. F. C. Ebeling, sixty-five years of age, self-styled doctor, entered two pleas of guilty to violating the Basic Science Law and the Statute against publishing and circulating circulars and pamphlets on the restoration of lost manhood and lost womanhood. The defendant had previously been given a warning by the State Board of Medical Examiners but failed to heed the same. His place of business was at 629 Third Avenue South, Minneapolis.

Following his arrest on May 26, defendant was unable to raise bail in the sum of \$1,500, and he was confined in the county jail of Hennepin County for a period of fifteen days. At the end of that time he decided to plead guilty before the Honorable Judge Mathias Baldwin of the District Court, at which time he paid a one hundred dollar fine for maintaining an office in violation of the Basic Science Law, and was given a one year sentence in the Minneapolis Workhouse, which sentence was suspended for a period of two years on condition that he refrain from violating the Medical Laws of this State.

Mr. Brist, representing the State Board of Medical Examiners, reports very good coöperation from Mr. Ed. J. Goff, recently elected County Attorney of Hennepin County, and his assistants, Mr. Neilson and Mr. Poirier. Judge Clyde R. White of the Municipal Court, who presided at the preliminary hearing of the defendant, and Judge Mathias Baldwin, before whom the case was disposed of in the District Court, were very fair in their attitude towards these two cases.

This is the first time since the passage of the Basic Science Law that the Medical Board has instituted proceedings under the Statute on advertising of a treatment for the restoration of lost manhood and lost womanhood. The Statute in question is set out below for the convenience of the members of the medical profession. The Medical Board will appreciate receiving any literature that comes to the attention of the members of the profession in violation of this law.

Sections 10191, 10192 and 10193, Maçon's Minnesota Statutes for 1927.

10191. CERTAIN MEDICAL ADVERTISEMENTS—PENALTY—Any person who shall advertise, in his own name or the name of another person, firm or pretended firm, association, corporation or pretended corporation, in any newspaper, pamphlet, circular, or other written or printed paper, or the owner, publisher, or manager of any newspaper or periodical who shall permit to be inserted or published in any newspaper or periodical owned or controlled by him, the treatment or curing of venereal diseases, the restoration of "lost manhood" or "lost vitality," or shall advertise in any manner that he is a specialist in diseases of the sexual organs, or diseases caused by sexual weakness, self-abuse, or excessive sexual indulgence, or in any disease of like causes, or who shall advertise in any manner any medicine, drug compound, appliance or any means whatever whereby it is claimed that sexual diseases of men and women may be cured or relieved, or miscarriage or abortion produced, shall be guilty of a gross misdemeanor and shall be punished by a fine of not less than fifty dollars nor more than five hundred dollars or by imprisonment in the county jail for not more than six months. ('09 c. 162 Sec. 1) (8709)

10192. PUBLICATION, ETC.—PENALTY—Any person publishing, distributing, or causing to be distributed or circulated, any of the advertising matter herein above prohibited shall be guilty of a misdemeanor and punished as prescribed in section 1 of this act. ('09 c. 162 Sec. 2) (8710)

10193. EVIDENCE—The production of any advertisement or advertising matter published or distributed contrary to the provisions of this act shall be of itself prima facie evidence of the guilt of the person or persons advertising to cure any such disease herein above mentioned, or of the publishers who publish any matter such as is herein prohibited. ('09 c. 162 Sec. 3) (8711)

NEGRO QUACK SENTENCED ON TWO CHARGES

State of Minnesota *vs.* Robert McGraw (2 cases)

Robert McGraw, sixty-five years of age, a negro quack who formerly practiced at Hewitt and Villard, Minnesota, was arrested on Monday, June 8, at Winsted, Minnesota, charged with violating the Basic Science Law. McGraw was previously tried on two occasions before Judge Flaherty at Glenwood for violating the medical laws of this state, but at each trial Judge Flaherty dismissed the case when the State rested. The State Board of Medical Examiners was informed that McGraw had located in McLeod County and he accordingly was arrested by complaint filed by Mr. Brist, representing the Board. On Thursday, June 11, a second complaint was filed against McGraw because of Mc-

Graw's attempting to cure a case of Hodgkin's disease. This case had been previously diagnosed by Dr. Chester J. Olson of Belle Plaine, Minnesota, as Hodgkin's disease with the usual prognosis. This did not prevent McGraw, however, from agreeing to cure the ailment within three months.

Upon the recommendation of Wm. O. McNelly, County Attorney, of McLeod County, Judge Kohler of the Municipal Court at Glencoe set McGraw's bail at \$2,000. McGraw was unable to raise this bail and he was accordingly confined in the county jail at McLeod County. The next term of Court in Glencoe is in November and this may have been a factor in McGraw's deciding to plead guilty.

On Friday, June 12, McGraw entered pleas of guilty to both charges before the Hon. C. M. Tift. Judge Tift fined McGraw \$225 and costs of \$13.25 on the first charge, which fine was paid. Defendant seemed to be short of ready cash, for he sold his automobile in order to pay the fine. On the second charge Judge Tift sentenced McGraw to one year in the county jail of McLeod County, and suspended the sentence on the following conditions:

1. McGraw is to return immediately to his native state of Illinois.
2. He is to refrain from the practice of healing in the State of Minnesota.
3. He is not to return to this state except that he is given forty-eight hours to come in and get his ten-year-old boy who is ill with the measles. When the boy is well McGraw is to be notified and he is to report to the Sheriff of McLeod County when he comes in to get the boy and when he leaves, which period of time is not to exceed forty-eight hours.

4. The Court expressly reserved the right to revoke the suspension of the sentence at any time the Court sees fit, either for cause or without cause.

Judge Tift warned the defendant against attempting to practice in his home state of Illinois or anywhere else unless he was licensed.

McGraw said that he had spent \$2,500 in the past three years fighting these cases and for that reason he was not hiring a lawyer for this case.

This brings to a close three years of work on the part of the State Board of Medical Examiners to eliminate one of the most vicious quacks in the State of Minnesota. The defendant is an unkempt, illiterate quack whose riddance is a blessing not only to the people of this State but to the medical profession as well. The medical profession owes a debt of gratitude to the men who brought about the successful termination of this matter and particularly Judge Kohler of the Municipal Court at Glencoe, John Luiten, Clerk of the District Court, Wm. O. McNelly, County Attorney of McLeod County; Sheriff Alfred T. Beihoffer of McLeod County and the Honorable C. M. Tift, Judge of the District Court, Glencoe, Minn. The coöperation displayed by Sheriff Beihoffer and County Attorney McNelly and the conditions imposed by Judge Tift in suspending the jail sentence, clearly shows that these authorities will not tolerate any such quackery in their district.

NEW AND NON-OFFICIAL REMEDIES

The Council on Pharmacy and Chemistry has accepted the following:

HIKSON LABORATORIES, INC.

Rabies Vaccine (Hixson)

LEDERLE LABORATORIES, INC.

Concentrated Pollen Antigen (Lederle) Ragweed Combined Diphtheria Toxin for Schick Test in Peptone Solution

ELI LILLY & Co.

Diphtheria Toxoid-Lilly

Syrup No. 112 Ephedrine Hydrochloride

CHAS. PFIZER & Co.

Calcium Gluconate-Pfizer

SPICER & Co.

Quiniobine

Quiniobine Ampules, 2 c.c.

E. R. SQUIBB & SONS

Grasses Combined Pollen Allergen Solution-Squibb

Cottonwood Pollen Allergen Solution-Squibb

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Non-official Remedies, 1930, p. 477):

HIKSON LABORATORIES, INC.

Diphtheria Antitoxin

Tetanus Antitoxin

TRUTH ABOUT MEDICINES

Mead's Powdered Brewer's Yeast.—Dried brewer's yeast harvested under aseptic conditions; it assays approximately 13 vitamin B₁ units per gram and approximately 1 vitamin B₂ units per gram. The product is proposed for prophylaxis and treatment of conditions arising from deficiency of the vitamin B complex in the diet. It is also proposed as a means of stimulating the appetite and growth and for a beneficial effect in lactation. Mead Johnson & Co., Evansville, Ind. (Jour. A. M. A., May 2, 1931, p. 1477).

Diphtheria Toxoid.—A diphtheria toxoid (New and Non-official Remedies, 1930, p. 364) prepared from diphtheria toxin by treatment with formaldehyde. It is marketed in packages of one immunization treatment and in packages of fifteen immunization treatments. Eli Lilly & Co., Indianapolis.

Ampules Solution of Nupercaine-Ciba. 25 c.c.—A 1:1,000 solution of nupercaine-Ciba (Jour. A. M. A., March 21, 1931, p. 946). Ciba Co., Inc., New York.

Schiffelin Psyllium Seed.—A brand of psyllium seed-N.N.R. (New and Non-official Remedies, 1930, p. 311). Schiffelin & Co., New York. (Jour. A. M. A., May 16, 1931, p. 1694.)

Diphtheria Toxin for Schick Test in Peptone Solution.—A diphtheria toxin (New and Non-official Remedies, 1930, p. 380) made by growing diphtheria bacilli in broth, aging and diluting with peptone solution according to J. E. Bunney. The product is ready for use. It is marketed in packages of one syringe containing diluted diphtheria toxin sufficient for one

test and in packages of one vial containing sufficient for ten tests. As a means of control, diphtheria toxin heated to 75 C. and diluted with peptone solution is supplied. Lederle Laboratories, Inc., Pearl River, N. Y.

Pollen Allergen Solutions-Squibb.—The following pollen allergen solutions-Squibb (New and Non-official Remedies, 1930, p. 27; Jour. A. M. A., December 20, 1930, p. 1913), marketed in 5 c.c. vials, has been accepted: Cottonwood Pollen Allergen Solutions-Squibb. The following pollen allergen solutions-Squibb (New and Non-official Remedies, 1930, p. 27; Jour. A. M. A., December 20, 1930, p. 1913), marketed in 5 c.c. vials, in treatment set packages, A, B, C and D, and in three vial treatment packages, has been accepted: Grasses Combined Pollen Allergen Solutions-Squibb (Bermuda Grass, June Grass, Orchard Grass, Red Top, and Timothy, in equal parts). E. R. Squibb & Sons, New York. (Jour. A. M. A., May 30, 1931, p. 1872.)

FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in Accepted Foods:

Zed Biscuits (Zed Corporation, San Francisco, Calif.)—Twice baked biscuits, leavened with baking powder, containing cracked whole wheat, whole wheat flour, rye meal, oat meal, wheat bran, bread flour, coconut oil, buttermilk (cultured), caramelized sugar, brown sugar and a mixture of orange, pineapple, grape and apple juices. Zed biscuits are claimed to be wholesome, nutritious, regulative and delicious.

Merrell-Soule Powdered Cultured Skimmed Lactic Acid Milk (Akrelac) (Merrell-Soule Co., Inc., New York)—This is a powdered artificial buttermilk, soured with pure culture of lactic acid organisms (*Streptococcus lactis*). The use of the product is proposed by the manufacturer to rectify digestive disturbances under artificial feeding, for acute intestinal disturbances, prolonged malnutrition, and complemental feeding.

Wheatena (The Delicious Wheat Cereal) (The Wheatena Corporation, Wheatonville, Rahway, N. J.)—A toasted granular wheat cereal composed of the embryo, essentially all of the endosperm and the major portion of the bran of red winter wheat. Wheatena is claimed to be a quick cooking wheat breakfast cereal with an individual toasted flavor requiring from two to three minutes for preparation. (Jour. A. M. A., May 2, 1931, p. 1478.)

Olde-Tyme Breads (Family, Round, Hearth and Pullman) (The City Bakery, Bellefonte, Pa.)—White bread loaves in wax-paper or "glassine" wrappers.

Sliced Purity Bread (Purity Baking Co., Ottawa, Ill.)—A sliced white bread made by the sponge dough method.

Merrell-Soule Powdered Protein Milk (Boilable) (The Merrell-Soule Co., Inc., New York)—A powdered food made from milk; higher in protein and mineral salts, lower in lactose than dry whole milk. It is only slightly acid. The preparation is proposed for use in infant feeding.

Amazo Golden Syrup (Corn Syrup and Refiners' Syrup) (American Maize-Products Co., New York)—A blend of corn syrup and refiners' syrup flavored with vanilla extract. (Jour. A. M. A., May 16, 1931, p. 1695.)

Mead's Powdered Lactic Acid Milk Noncurdling No. 1 with Dextri-Maltose (Mead Johnson & Co., Evansville, Ind.)—A powdered, spray-dried homogenized milk containing added lactic acid, maltose and dextrin. It is claimed that the mixture with water may be boiled without curdling or change of color or taste. It is proposed for use in infant feeding.

Libby's Tomato Juice (Libby, McNeill & Libby, Chicago)—A pasteurized tomato juice, seasoned with salt. It is claimed that the method of preparation tends to retain the vitamins of the original fruit. It is claimed that the product is a food which stimulates the appetite and that, like orange juice, it is a protective food against scurvy.

Self Rising Washington Flour (Wilkins-Rogers Milling Co., Washington, D. C.)—A mixture of wheat flour with baking powder leavening and seasoning—calcium acid phosphate, sodium bicarbonate and salt. The flour is claimed to be adapted to biscuit, pastry and cake baking. (Jour. A. M. A., May 23, 1931, p. 1780.)

Jerry's Kew-Bee Bread (Jerry's Bakery Co., Terre Haute, Ind.)—A white bread made by the sponge dough method.

Page Evaporated Milk (Sterilised, Unsweetened) (The Page Milk Co., Merrill, Wis.)—An unsweetened evaporated milk. A mixture of one part water and one part of this product corresponds to the legal standard for whole milk.

Vermont Maid Bread (Vermont Baking Co., White River Junction, Vt.)—A white bread made by the sponge dough method.

Staley's Golden Table Syrup (A. E. Staley Manufacturing Co., Decatur, Ill.)—A table syrup; a corn syrup base (glucose) flavored with choice refiners' syrup.

Staley's Crystal White Syrup (A Savory Blend of Pure Corn Syrup, Granulated Sugar Syrup and Vanilla) (A. E. Staley Manufacturing Co., Decatur, Ill.)—It is a mixture of corn syrup base (glucose) and sucrose flavored with vanilla extract. (Jour. A. M. A., May 30, 1931, p. 1872.)

Velveeta (Kraft-Phenix Cheese Corporation, Chicago)—A delicious cheese food. Kraft Process American Cheese with added milk sugar, milk minerals and water. A cheddar cheese admixed with cream (or butter and skim milk powder), milk-whey powder and salt. The approximate composition is: moisture, 44 per cent; ash, 6 per cent; fat, 25.5 per cent; protein, 18 per cent; lactose, 6.3 per cent; calcium, 0.53 per cent; phosphorus, 0.71 per cent; 75 mg. of Velveeta is equivalent to 10 mg. of butter in Vitamin A potency. Velveeta is claimed by the manufacturer to be richer in milk minerals and lactose than the usual cheeses not containing the milk-whey. (Jour. A. M. A., March 21, 1931, p. 947.)

CONSULTATION BUREAU

WM. A. O'BRIEN, M.D., *Director*

Minnesota State Medical Association

11 West Summit Avenue

Saint Paul, Minnesota

1. *Question.*—Five weeks ago, a woman, 28 years old, married six months, never pregnant, woke up at 5:00 A. M. with a severe pain in the right hip region. It was exquisitely tender. Pressure along the course of the sciatic nerve was very painful. Deep pressure over the long bone was not so distressing. There was no elevation of temperature until one week later, when her temperature rose to 100 for a day or two and then went to normal; stayed normal for four days and since then has been of the intermittent type. The highest point was 101.5 and the lowest 98. The pulse has been around 80 for two weeks. During the last two weeks it has become more rapid and for the past five days has been rather constant at 120 beats per minute.

Physical examination has been negative all along. No cardiac findings. Shifting tenderness over the right leg is getting general. Pain extends to the shoulders, the back and sometimes just from the knee to the ankle.

Last week she had four definite chills in five days. The temperature did not go up above 101.5 but there was an increase in the pain along with the chill. None of the joints has ever showed any signs of redness or swelling.

Two days ago, she began to have dysuria with frequency, passing three or four ounces every half hour. The urine has been negative daily as far as albumin, sugar, or any other abnormal constituent is concerned. The acidity has been low.

X-ray examination of the bones is negative. Repeated pelvic examinations have yielded no abnormal findings. The white blood count has varied from 8,150 to 14,000. May 15, the hemoglobin report was 60 per cent (Tallqvist), red blood count 4,690,000, white blood count 8,150, and the differential-neutrophils 66 per cent, small lymphocytes 7 per cent, large lymphocytes 26 per cent, transitional cell 1, and no eosinophils nor basophils seen. The large lymphocytes look rather immature to me.

At times the pain was so severe that it required morphine or pantopon of fairly good sized doses. This at times has failed to control it and does not permit very much sleep. The ordinary analgesics have not been of any particular value.

There is no glandular enlargement, even the tonsils are very small. Have noted two small nodules, subcutaneous in location, in the right lower abdominal region. One appeared about ten days ago and the other four days ago. They are about the size of a large pea and are moderately tender to touch.

I would greatly appreciate your opinion in this matter.

Answer.—It is not likely that the suggestive immaturity of the lymphocytes is significant in this

case. The differential count showing the usual excess of neutrophils is against any diagnosis of leukemia at this stage. We sometimes see this type of cell in infections but are unable to use it in any way to make a diagnosis.

As far as the subcutaneous nodules are concerned, I would advise you to do a biopsy and have a microscopic section done. This will clear up any relationship to the case.

The diagnostic possibilities are: Arthritis, bone tumor, or osteomyelitis or periostitis. The absence of positive X-ray bone findings is not against any bone or joint diagnosis and I would suggest that you repeat this part of the examination. We frequently see cases early in their course which do not show any findings either of tumor or inflammation. Later plates would show the process very clearly.

The commonest type of bone tumor, associated with severe pain, fever and other signs of infection is Ewing's tumor, which is an endothelioma and involves any part of the skeleton, either in one or several places. An interesting complication frequently seen is simultaneous involvement of the lymph nodes and visceral metastasis.

Pelvic infections, as a general rule, do not cause a severe type of hip pain. The bladder symptoms and location of the pain are suggestive of psoas abscess. Could it be possible that there is anything in the lumbar vertebra? Metastatic bone tumors cannot be ruled out until a careful research has been made for the primary. It is possible that the subcutaneous nodules, that you mention, might be helpful in clearing up this point.

We doubt that it is in any way associated with a leukemic process. Hodgkin's may involve the bone and cause severe pain. Deep visceral Hodgkin's may be present without enlargement of the nodes. Again, a biopsy of the nodules would be helpful.

In our experience, arthritis of the infective type (rheumatic) seldom causes severe pain over such a long period of time as you have noted in your case. Tumors, primary or metastatic, suppurative arthritis, osteomyelitis or periostitis and Hodgkin's disease are more likely.

2. *Question.*—Occasionally I examine the secretions from the prostate gland under the microscope. Usually I find many white cells. Is this normal? Do one-third of all males have prostatic infection?

Answer.—A few white cells is the usual finding. An increase means inflammation. You are right in the statement that about one-third of all males after 30 years of age have prostatic infection, but very few give any trouble.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

MEDICAL BROADCAST FOR THE MONTH

The Minnesota State Medical Association Morning Health Service.

The Minnesota State Medical Association broadcasts weekly at 10:15 o'clock every Wednesday morning over Station WCCO, Minneapolis and St. Paul (810 kilocycles or 370.2 meters).

Speaker: William A. O'Brien, M.D., Associate Professor of Pathology and Preventive Medicine, Medical School, University of Minnesota.

The program for the month of July will be as follows:

- July 1—Safety First for the Fourth.
- July 8—Cause of Albumin in Urine.
- July 15—Type I Pneumonia.
- July 22—Aims of Education.
- July 30—Newer Knowledge of Cancer.

THE AMERICAN COLLEGE OF PHYSICIANS

The American College of Physicians will hold its Sixteenth Annual Clinical Session at San Francisco with headquarters at the Palace Hotel, April 4 to 8, 1932. Following the Clinical Session, a large percentage of the attendants will proceed to Los Angeles, where a program principally of entertainment will be furnished April 9, 10 and 11.

Announcement of the dates is made particularly with a view not only of apprising physicians generally of the meeting, but also to prevent conflicting dates with other societies that are now arranging their 1932 meetings.

Dr. S. Marx White, of Minneapolis, is President of the American College of Physicians, and will arrange the Program of General Sessions. Dr. William J. Kerr, Professor of Medicine at the University of California Medical School, San Francisco, is General Chairman of local arrangements, and will be in charge of the Program of Clinics. Dr. Francis M. Pottenger, of Monrovia, is President-Elect of the College, and will be in charge of the arrangements at Los Angeles. Mr. E. R. Loveland, Executive Secretary, 133-135 S. 36th Street, Philadelphia, Pa., is in charge of general and business arrangements, and may be addressed concerning any feature of the forthcoming session.

NORTHWESTERN PEDIATRIC SOCIETY AND STAFF OF CHILDREN'S HOSPITAL—JOINT MEETING

A joint meeting of the Northwestern Pediatric Society and the Staff of the Children's Hospital was held at the Children's Hospital, Saint Paul, May 20, 1931. Thirty-eight members were present.

The meeting was called to order by the President, Dr. Samuel Amberg, at 8:15 p. m. Dr. Amberg sug-

gested that, owing to the length of the program, we dispense with the reading of the minutes of last meeting.

It was moved by Dr. Thomas Myers, seconded by Dr. W. Ray Shannon, that five meetings be held this year: the spring meeting at Saint Paul, the summer meeting at Rochester, the fall meeting in Duluth, the winter meeting at Minneapolis, and the annual meeting at the Town and Country Club, Saint Paul. At these meetings members from other towns have the privilege of presenting papers.

The following clinical program was then presented by the Staff of the Children's Hospital:

1. Spontaneous subarachnoid hemorrhage.....Dr. Critchfield
DiscussionDr. Andrews
2. Chronic suppurative parotitis.....Dr. Birnberg
3. Liver abscess.....Dr. Colby
Discussion.....Drs. Ikeda, McQuarrie and Shannon
4. Recent progress in child psychiatry.....Dr. Lippman
DiscussionDr. Amberg
5. Pediatrics in Ancient Egypt.....Dr. Rosenthal
DiscussionDr. McQuarrie
6. Pulmonary tuberculosis.....Dr. Myers
7. Unusual case of diabetes.....Dr. Ramsey
Discussion.....Drs. Shannon, Andrews and McQuarrie

ALEXANDER STEWART,
Secretary-Treasurer.

REDWOOD-BROWN COUNTY SOCIETY

On Tuesday, May 19, 1931, the Redwood-Brown County Medical Society held its annual meeting at New Ulm. Dinner was served to the doctors and their wives at 6:30 p. m. in the parlors of the Methodist Church, fifty-two being present.

After the dinner all repaired to the home of Dr. and Mrs. Geo. F. Reineke, where the women organized a local chapter of the State Medical Auxiliary, while the doctors held their scientific meeting.

Dr. F. A. Willius, of the Mayo Clinic, delivered an able lecture on "Heart Disease, including the discussion of sudden death." This lecture was illustrated by slides thrown upon the screen by Dr. Monte Piper, also of the Mayo Clinic.

The following officers were elected for the ensuing year: Dr. F. H. Dubbe, New Ulm, president; Dr. A. P. Goblirsch, Sleepy Eye, vice-president; Dr. Wm. A. Meierding, New Ulm (re-elected), secretary-treasurer; Dr. Geo. B. Weiser, New Ulm, state delegate; Dr. J. P. Vogel, New Ulm, alternate; Dr. Theo. Hammermeister, New Ulm (re-elected), censor.

The Chairman appointed the following committees: Publicity, as well as Public Health—Dr. Geo. B. Weiser, New Ulm; Dr. Wm. McLane, Sleepy Eye, and Dr. J. C. Rothenburg, Springfield.

Maternal and Infant Hygiene—Dr. Geo. B. Weiser, New Ulm, and Dr. E. Jamieson, Walnut Grove.

Public Policy and Legislation—Dr. J. C. Rothenburg, Springfield, and Dr. Theo. Hammermeister, New Ulm.

It was decided to have the president appoint a com-

mittee of three who were to arrange for more frequent meetings during the year and to arrange for suitable programs. These meetings may be held in various cities and towns providing the local physicians arrange for a suitable meeting place.

A resolution was passed that our society go on record as disapproving of free medical and surgical services being given ex-service men for disabilities not incurred in the service, as this practice is a big step towards socialized medicine.

WM. A. MEIERDING, Secretary.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The annual meeting of the Southern Minnesota Medical Association will be held at Faribault, August 24, 1931, at the Shattuck School. The program this year will be similar to the one given last year in that clinical demonstrations and clinics will be held in the morning with a formal program in the afternoon and a banquet with prominent speakers in the evening. The completed program will be published in the August number of MINNESOTA MEDICINE.

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

The semi-annual meeting of the Southwestern Minnesota Society was held at Luverne, Minnesota, May 11, 1931. Thirty-three doctors were present. The following program was given:

"State Medical Society"

Dr. L. L. Sogge, Windom, Minn.

"Spinal Anesthesia"

Dr. Sydney Watson, Worthington, Minn.

"Medical Economics"

Dr. C. L. Sherman, Luverne, Minn.

"Report on State Medical Meeting"

Dr. E. W. Arnold, Adrian, Minn.

"The Relation of the Medical Profession to State Senate"

Sen. Frank J. Snell, Adrain, Minn.

"The Attitude of the Medical Profession to Workman's Compensation"

Sen. J. V. Weber, Slayton, Minn.

Rep. John Connell, Luverne, Minn., was also present and gave a very interesting talk.

E. G. McKEOWN, M.D.,
Secretary.

WABASHA COUNTY SOCIETY

The sixty-third annual meeting of the Wabasha County Medical Society will be held at Lake City, Minnesota, Thursday, July 9, 1931.

Following the business session in the morning dinner will be served at the Hotel Lyon, where members will be guests of the Lake City members and affiliated dentists.

"Minnesota Wild Life in Motion Pictures" will be presented in three reels with a talk by Professor Thomas S. Roberts, Director of the Zoological Museum, University of Minnesota.

The scientific program in the afternoon will be as follows:

President's Address—"Further Report on Undulant Fever, with Three Additional Cases." Dr. E. C. Bayley, Lake City

"Tuberculous Salpingitis"—Dr. Alfred Belitz, Pepin, Wisconsin

"Medical Policies Discussed at the 1931 County Secretaries' Meeting"—Dr. W. F. Wilson, Lake City

WASHINGTON COUNTY SOCIETY

The regular meeting of the Washington County Medical Society, which was held Tuesday, May 12, was, in some respects, our most successful meeting. The attendance was good. Dr. J. F. Borg of St. Paul, our guest speaker, gave a fine and comprehensive talk on "Arterio- and Arteriole-sclerosis." From the number of questions asked, there is no doubt that much interest was taken in this important subject.

The Society was quite interested in the proceedings of the Council and the House of Delegates. It was especially interested in the resolution of the Hennepin County Surgical Society, and the report of Dr. O. E. Locken of Crookston.

During the short existence of our County Committee on Public Health Relations decided results have been produced. Contact with P. T. A. is becoming more and more satisfactory; the 4-H Club is fine and owes its success to the enthusiastic support given us by Mr. A. Sjewall. Through him our Committee has been able to make arrangements for a Health Booth at the coming County Fair, with doctors and a nurse in attendance to explain preventive measures as known and practiced today. Charts and posters will also be used with attractive decorations to draw the attention of Fair visitors. We owe Mrs. P. F. Murphy, Secretary of the Washington County Public Health Association, who is our staunch supporter, a great deal for her valuable help in making these contacts.

As far as practical, we are going to apply the tuberculin test (Mantoux) to school children in the eighth grade and first year High School, some time this summer. We are also trying to make arrangements for the examination of pre-school children and toxin-anti-toxin tests. This seems to me to be a pretty fair beginning.

E. SYDNEY BOLEYN, M.D., Secretary.

OLD TUBERCULIN IN THE TREATMENT OF TUBERCULOSIS

Koch reported tuberculin to the profession in 1890, and it was hailed as a specific remedy; unfortunately, it was administered in a somewhat reckless way by inexperienced clinicians, and the disadvantages soon resulted in widespread condemnation. Tuberculin is not a selective curative remedy in the treatment of tuberculosis. It is not a specific. It should not be used by general practitioners in routine office practice, but by specialists in the sanatorium or home where there is careful clinical supervision of the patients. (Jour. A. M. A., May 16, 1931, p. 1720.)

WOMEN'S AUXILIARY

Minnesota State Medical Association

President—Mrs. S. S. Hesselgrave, St. Paul
Chairman Press and Publicity—Mrs. E. A. Meyerding, St. Paul
Editor—Mrs. A. A. Passer, Olivia

PRESIDENTS OF THE WOMEN'S AUXILIARY TO THE COUNTY MEDICAL SOCIETIES, 1931

Blue Earth County.....	Mrs. A. E. Sohmer, Mankato
Camp Release.....	Mrs. J. S. Kilbride, Canby
Hennepin County.....	Mrs. Martin Nordland, Robbinsdale
McLeod County.....	Mrs. Thos. J. Trutna, Silver Lake
Meeker County.....	Mrs. A. W. Robertson, Litchfield
Mower County.....	Mrs. A. W. Allen, Austin
Nicollet-Le Sueur.....	Mrs. Joseph O. McKeon, Montgomery
Olmsted County.....	Mrs. M. S. Henderson, Rochester
Park Region.....	Mrs. C. O. Estrem, Fergus Falls
Ramsey County.....	Mrs. W. H. Hengstler, 1120 Lincoln Ave., St. Paul
Red River Valley.....	Mrs. B. C. Bernard, Thief River Falls
Redwood-Brown County.....	Mrs. Wm. A. Meierding, New Ulm
Rice County.....	Mrs. M. L. Mayland, Faribault
Scott-Carver County.....	Mrs. B. H. Simons, Chaska
Stearns-Benton.....	Mrs. Werner Hemstead, St. Cloud
Steele County.....	Mrs. A. B. Hart, Sr., Owatonna
St. Louis County.....	Mrs. F. N. Knapp, 327 Kenilworth Ave., Duluth
Southwestern Minn.....	Mrs. L. Sogge, Windom
West Central.....	Mrs. Chas. Bolsta, Ortonville
Washington County.....	Mrs. J. W. Stuhr, Stillwater
Wright County.....	Mrs. John Catlin, Buffalo

The Women's Auxiliary has gained ten new auxiliaries during the past year under the direction of the organization chairman, Mrs. James Blake. Minnesota now has 23 auxiliaries, comprising 54 counties; 267 new members this year; 937 paid members, state and national; 978 paid in state; 1,024 listed as members (46 delinquent). Lyon-Lincoln Medical Society has authorized an Auxiliary to be organized at a meeting called for June 29 at Tracy.

CAMP RELEASE AUXILIARY

Officers of the Camp Release Auxiliary met in executive session at Granite Falls, May 26, after a picnic lunch. Mrs. J. S. Kilbride, Canby, president of the auxiliary, presided. She was assisted by the members of her board: Mrs. C. M. Johnson, Dawson, vice president; Mrs. George H. Mesker, Olivia, second vice president; Mrs. R. C. Adams, Bird Island, secretary; Mrs. L. G. Smith, Montevideo, treasurer. It was voted to have a joint picnic with Camp Release Medical Society at Green Lake in June. The following committees were appointed: Membership—Mrs. R. C. Adams, Mrs. H. Johnson, Mrs. R. Billings; Entertainment—Mrs. George Mesker, Mrs. L. G. Smith, Mrs. L. J. Holmberg; Publicity—Mrs. A. A. Passer; Legislative—Dr. Kathleen Jordan; Public Health—Mrs. M. A. Burns; Nominating—Mrs. A. G. Sanderson; Mrs. M. S. Nelson, Mrs. J. Dordal.

RAMSEY COUNTY AUXILIARY

Ramsey County Auxiliary held its annual picnic and annual business meeting and election of officers on Monday, May 25, at the summer home of Mrs. Henry N. Klein, Turtle Lake. Reports of officers and chairmen

were given, showing an active year. Mrs. Hesselgrave, state president, was guest of honor and thanked the members of her own Auxiliary for their splendid co-operation with the state and national auxiliaries throughout the past year. The election resulted as follows: Mrs. W. H. Hengstler, president; Mrs. Karl Dedolph, vice president; Mrs. O. W. Holcomb, second vice president; Mrs. Harry Ghent, recording secretary; Mrs. C. C. Bell, corresponding secretary; Mrs. Donald Bacon, treasurer; Mrs. E. M. Hammes, auditor.

REDWOOD-BROWN AUXILIARY

At a meeting held in New Ulm, May 19, the Redwood-Brown Auxiliary was organized and the following officers were elected: Mrs. Wm. A. Meierding, New Ulm, president; Mrs. A. P. Goblirsch, Sleepy Eye, vice president; Mrs. Albert Fritsche, New Ulm, secretary-treasurer. The members of the new auxiliary and the doctors held a joint banquet and it was observed that the meeting was unusually well attended and due credit was given to the auxiliary. Fifty-four were present at the banquet.

RICE COUNTY AUXILIARY

The Women's Auxiliary to the Rice County Medical Society met on May 13 at the home of Mrs. C. A. Traeger of Faribault. Mrs. P. F. Meyers, chairman of the nominating committee, presented names for election of officers. The following were elected for the coming year: Mrs. M. L. Mayland, president; Mrs. Warren Wilson, vice president; Mrs. A. L. Haynes, secretary; Mrs. Orin Thorson, treasurer. A report of the state meeting held in Minneapolis in May was given by Mrs. A. M. Hanson. A layette was furnished for the Northfield hospital. Refreshments were served by the hostess and the meeting adjourned until October. Mrs. C. J. Plonske and Mrs. M. L. Mayland will attend the National Auxiliary meeting in Philadelphia in June.

SOUTHWESTERN MEDICAL AUXILIARY

A Women's Auxiliary to the Southwestern Medical Society was organized on May 11 in Luverne. The meeting was called for 8 p. m. at the home of Mrs. C. L. Sherman. Mrs. S. S. Hesselgrave, St. Paul, and Mrs. James Blake, Hopkins, were present and aided in perfecting the organization of this new group. The following officers were elected: President, Mrs. L. Sogge, Windom; Vice President, Mrs. E. W. Arnold, Luverne; Secretary-Treasurer, Mrs. E. A. Kilbride, Worthington.

STEARNS-BENTON AUXILIARY

The annual meeting of the Auxiliary was held in the Art Shop tea room on Tuesday, May 12, in St. Cloud. One o'clock luncheon was served to the sixteen members present. Annual reports of the officers were read and accepted. Mrs. J. D. Kohler of St. Joseph was elected second vice president; Mrs. J. J. Gelz, corresponding secretary; and Mrs. Jennie Havorka, treasurer. On Saturday evening, May 16, the Stearns-Ben-

ton Medical Society entertained the members and their wives of Upper Mississippi and Wright county societies in the community room of the Court House in St. Cloud. The moving pictures of Surgical Technic which had been presented at the state convention in Minneapolis in May were shown. The Auxiliary served lunch after the program. Tuesday, May 26, Mrs. J. C. Buscher of St. Cloud entertained the Auxiliary Bridge club at her home. Honors were won by Mrs. H. B. Clark and Mrs. J. E. Dwyer.

STEELE COUNTY AUXILIARY

The Steele County Medical Society held a special meeting and banquet at the Owatonna Hotel. Dr. L. R. Critchfield of St. Paul was the guest of honor. Other guests included Mrs. Critchfield, Miss Agnes Melbstad, Miss Emma Leach, and the wives of the members of the Steele County Society. At the close of the banquet, the ladies adjourned to the parlors, where the Women's Auxiliary of the Steele County Medical Society was formed with the following officers elected: Mrs. A. B. Hart, Sr., president; Mrs. A. B. Stewart, vice president; Mrs. E. W. Senn, secretary; Mrs. L. V. Berghs, treasurer. This auxiliary plans to affiliate with the state and national auxiliaries at a meeting June 19. For the present meetings will be held on the third Friday of each month at the Owatonna City Hospital.

WASHINGTON COUNTY AUXILIARY

The annual meeting of the auxiliary was held at the home of Mrs. F. G. Landeen on Tuesday afternoon, June 2. Miss Christine Strom, superintendent of Lakeview Memorial Hospital, gave a talk on "A Résumé of a Student in Our School of Nursing." The Women's Auxiliary and the Washington County Medical Society will hold a joint picnic July 9, at the home of Dr. and Mrs. Henry Van Mejer on Lake St. Croix. New officers for the ensuing year were elected as follows: Mrs. Wilfred Hewson, president; Mrs. E. V. Strand, vice president; Mrs. R. J. Josewski, secretary and treasurer.

SCIENCE AND THE ADVERTISER

Printers' Ink, a journal for advertisers, is anxious to establish a "Forget Scientists Week": "Perhaps you have been so foolish as to think that scientists worked at the business of science. Not so. They test cigarettes, tell frightened mothers about breakfast foods, warn young men against the dangers of something that usually ends with -osis. Now and then to be sure they make an epoch-making discovery which will bring about an astounding revolution in the manufacture of nine-count, full-fashioned galoshes. In short, they are scientists of the advertising pages." *Printers' Ink* recognizes the dismay that has been aroused in scientists generally by the exploitation of pseudoscience in advertising. It ridicules those who are now preparing copy for advertisements in modern periodicals because they are so utterly lacking in originality. Advertising in the periodicals of the United States has gone to lengths that have opened it to ridicule and censure. (Jour. A. M. A., May 23, 1931, p. 1799.)

PROCEEDINGS OF THE MINNEAPOLIS SURGICAL SOCIETY

Meeting of May 21, 1931

The regular monthly meeting of the Minneapolis Surgical Society was held in the Lounge on the 20th floor of the Medical Arts Building, on Thursday evening, May 21, having been postponed on account of the State meeting. The meeting was called to order by the President, Dr. A. T. Mann, at 8 p. m. There were 26 members and visitors present.

The scientific program consisted of the following:

DR. A. T. MANN stated he would like to present a specimen showing dry gangrene of the right hand. The patient was a woman 77 years of age and her history ran back about a year ago when a medical man was called to see her on account of heart trouble. He saw her about once a week for a while, then about December he was called over in a hurry one day and found her in delirium with a bad pulse and a painful area just above the elbow in the upper arm. The forearm was moderately swollen and an induration could be felt running from the wrist toward the elbow along the region of the ulnar artery. The hand the next day was blue and the fingers became black the next day; the thumb, the following day. Her delirium continued for about two weeks. She had a temperature of 102° and when the physician first saw her he thought she had "flu." He thought she was going to die. The line of demarcation soon developed on the line in which it shows now, on the thumb, most of the palm and up the little finger on the outside, all of the fingers and some of the back of the hand. In going over the history carefully, Dr. Mann said he could get no history of a sudden pain. An embolus will practically always give a sudden sharp pain when first arrested, and a thrombus acts just about the same way without the pain. It may be that there was a small embolus, partly occluding, in the region at or above the bifurcation of the main brachial artery just above the elbow followed by an occluding thrombosis.

Dr. Mann said he felt that gangrene of the hand is so rare that the members would be interested in seeing this specimen. As stated, the patient is 77 years old. Both feet are warm. It is now five days since he removed the hand and she has been sitting up in a chair since the third day. The dressing shows a nice warm line and no necrosis. When the amputation was done there were no vessels to tie; no vessels spurted and he thought he might have to amputate higher in the arm. He finally got hold of the ulnar artery, pulled it down and picked at it a little. It bled just a very little and so it was tied, but he thought he could have done the whole operation without tying a single vessel.

DISCUSSION

DR. E. A. REGNIER said that ordinarily one would not expect gangrene in the hand from an embolus of the

brachial artery, and one would probably have to explain the presence of gangrene in this case on an arteriosclerotic basis. He had seen a man 78 years of age who had an arteriosclerotic gangrene of the little finger.

DR. MANN said the patient showed no evidence of this except that the vessels showed obliteration. As soon as she was able to be taken to the X-ray room afterwards, films were taken of all extremities. These showed a moderate atheroma of the arteries in both legs and in both arms, with slight areas of calcareous material.

DR. J. F. CORBETT recalled one case of gangrene of the hand that was, in part at least if not wholly, due to cervical rib. He wondered if there might be something like that in Dr. Mann's case.

DR. ROBERT P. CARON read his thesis entitled "Intra-abdominal Local Anesthesia" and showed lantern slides demonstrating the method.

DISCUSSION

DR. S. R. MAXEINER felt that Dr. Caron's excellent paper should not go entirely without discussion. Dr. Caron's observations were particularly interesting to him and he believed now that, with the popularity of spinal anesthesia, local anesthesia forms an excellent addition to the armamentarium of the surgeon, particularly in those cases in which the anesthesia is not sufficiently lengthy. He stated that at Fort Snelling they had had about 40 operations on the stomach under spinal anesthesia. Many of the spinal anesthetics had not lasted long enough for them to accomplish complete gastric resection, although it is usually adequate for a pyloroplasty or a gastroenterostomy. However, they have been injecting the abdominal wall immediately on opening the abdomen and when the viscera are exposed the splanchnic nerves supplying the organ to be attacked have been blocked. Turning up the colon and omentum, he has deposited novocain near the ligament of Treitz and by blocking the gastrohepatic omentum he has secured profound splanchnic anesthesia which has allowed total gastrectomy without spinal, but when performed concomitantly with spinal neither the patient nor the operator realizes when the spinal anesthesia is lost. In the performance of Polya operations for recurrent duodenal and gastrojejunal ulcers, anesthesia has been complete at the end of two and a half hours.

Dr. Maxeiner felt that in the aged, the toxic, and in those cases constituting the substandard risk, local anesthesia should surely constitute a part of the armamentarium of the operator. He said that he had done the upper stage of the Coffey operation by blocking beneath the pelvic brim, which anesthetized all of the sympathetics to the entire pelvis as demonstrated by Dr. Caron's slides. He usually turned the colon to the midline and infiltrated the pelvic brim and then, turning the colon to the other side, completed the injection entirely around the pelvis. By this anesthesia, the upper stage of the Coffey operation may be done as completely as with general anesthesia. Dr. Maxeiner was of the opinion that all surgeons should be able to block the sympathetics within the abdomen, most failures being due

to the fact that surgeons will not learn the fundamentals and do not use the method sufficiently often to remain proficient. The more refined surgical technic demanded by the use of local and spinal anesthesia is just as efficient in the prevention of shock and trauma when spinal or general anesthesia are used.

Dr. Maxeiner expressed congratulations to Dr. Caron upon his excellent paper.

DR. E. A. REGNIER felt that the Society was to be complimented in having Dr. Caron's paper so splendidly presented. After seeing the slides and hearing the paper, Dr. Regnier felt that the biggest thing which Dr. Caron had brought out was the practicability of intra-abdominal local anesthesia, and the focusing of attention on its indications. He stated it was particularly indicated in the aged and debilitated people who were poor risks for general anesthesia and likewise for spinal anesthesia. Dr. Regnier mentioned a recent operation which he had done on a patient 67 years old, with a carcinoma of the pylorus in which a subtotal gastric resection was done entirely under local anesthesia, with a maximum pulse rate of 78 while the patient was on the operating table. Without local anesthesia it would have been difficult to manage a case of this kind. He felt that where most surgeons fail in the use of local anesthesia is in taking fifteen to twenty minutes to obtain splanchnic anesthesia after the abdomen is opened. He feels that he cannot sacrifice this time and hastens to use general anesthesia, thereby failing in his objective.

DR. CARON, in closing, said he wished to emphasize one point, i.e., in the establishment of splanchnic anesthesia, the perivascular injection is of paramount importance. In other words, if the injection is made right next to the mesenteric blood vessels the anesthesia is more certain.

In the Annual Prize Essay Contest offered by the Minneapolis Surgical Society, the judges had awarded the prize to Mr. Theodore C. Erickson, student in the University of Minnesota Medical School. According to the terms of the contest, the winning essay must be read before a meeting of the Society.

MR. THEODORE C. ERICKSON read his essay entitled "The Histologic Grading of Squamous-Cell Carcinoma of the Lip," and charts were shown.

DISCUSSION

DR. J. M. HAYES said he was very much pleased to have Mr. Erickson present this subject. About eleven years ago he had gone over some of these cases and was much impressed with the way in which Dr. Broders gave his prognosis in each case with nothing to guide him but the dusty slides he had taken from the shelves. The records in the histories proved that he was correct in his prognosis in the great majority of the cases. Other pathologists apparently have not been able to follow Broders' method. The essayist has shown that with his limited experience he has done very well with this method of grading. Dr. Bloodgood has stated that he believed this was a decided advancement in the recent studies of malignancy. No doubt both the surgeon and

clinician would feel greatly aided by a prognosis as definite as this.

DR. JAMES JOHNSON thought this was a very splendid piece of work and congratulated the essayist. He felt it was through this type of work that progress would be made in the handling of carcinoma. He wished, however, to leave one thought with the men, one which had come entirely from clinical experience, and that is that this type of grading had not been safe enough to justify minimizing the operation in any way in the treatment of carcinoma. He felt that, regardless of what the type might be, one still has to rely upon a thorough removal of the growth and the adjacent glands. Dr. Johnson said undoubtedly in time pathology would reach a stage where this type of grading would be more accurate, but at the present time, from the standpoint of treatment, all carcinomas should be given a thorough radical removal.

DR. MANN said, of course one can never tell when there are secondaries in the glands, and personally he felt that whenever an operation is done on the lip a dissection of the neck should be done also.

MR. ERICKSON, in closing, said, in regard to the correlation between the type of operation and the post-operative history in the case, that he had just started working on that phase of the problem and was sorry he had no results to report at this time. He hoped to have some in the next two months. He believed there was really no justification for doing just a local excision on the Grade I group as yet, because most men could not grade these as well as Dr. Broders does. At the Mayo Clinic at least 80 per cent have had excision of the local lymph nodes. Brewer in his work showed the relation between the percentage of five-year cures and the type of operation. He found that where there was no glandular involvement demonstrable, local excision alone gave 66 per cent of five-year cures, while local excision combined with block dissection of the neck gave 92 per cent of five-year cures.

Mr. Erickson said he was very much impressed by the way in which Dr. Broders could grade these carcinomas. Many others have tried other methods of grading which have differed somewhat from Broders' but he thought none of the other methods have shown the merit which Dr. Broders' has shown. Hueper of Chicago has a method of grading, using 20 different items, such as separate characteristics of the cells, but this seems too complicated for practical use.

DR. O'BRIEN of the University Hospital, in a survey of the literature on carcinomas of the bladder, concluded that Broders' method of grading gives just as good results in prognosis as clinical judgment based on both clinical findings and the usual pathological data.

DR. R. R. CRANMER read a paper on "Spinal Anesthesia" and slides of numerous charts were shown.

DISCUSSION

DR. MARTIN NORDLUND said there were two points with reference to spinal anesthesia which might be of interest and which he would like to have Dr. Cranmer

discuss. First, nothing was said in the discussion with reference to the amount of drug which should be administered and particularly what the factors were which would determine this amount. He called attention to Dr. Lunde's method of using 1 mg. for each pound of weight of the patient. Second, he thought it important to consider the cause and the treatment of the nausea which frequently occurs during the operative procedure, following the administration of spinal anesthesia. He called attention to a recent talk by Dr. Wright of the Pharmacology Department of the University of Minnesota before the Hennepin County Medical Society, with reference to stimulants. Dr. Wright emphasized the value of Alpha-lobelin and Metrazol as respiratory stimulants. Dr. Wright stated that he believed the drugs would be of benefit for the nausea thus developed.

DR. NORDLAND said in his experience with spinal anesthesia, he believed that these drugs were very effective in preventing the nausea.

DR. DANIEL BESSESEN (by invitation) said he would like to add a few points to the discussion. During the last decade a tremendous amount of work had been done on all types of anesthesia and since this work had grown it seemed to him the indications and contraindications had been greatly altered. He felt that the anesthetic may be selected for the individual case and the individual type. Some individuals should be put to sleep. Crile and his associates wish to put most of their goiter cases to sleep. Dr. Bessesen thought blocking should be done in any case where there is a desperate risk. Spinal anesthesia has a great field and the indications and contraindications which Dr. Cranmer has given represent the last work on that subject. He himself had been somewhat surprised at the number of surgeons who do not consider spinal anesthesia contraindicated in peritonitis. He always preferred the Fowler position but these surgeons do not seem to fear using spinal in their cases of peritonitis, after which they are placed in the Trendelenburg position for three hours and then are kept in the flat position for 24 hours without apparent bad results.

Dr. Bessesen said one might wonder if the drop in blood pressure would produce embolus formation. He had not noticed any reported in the literature, and perhaps none had been made by the men using spinal anesthesia.

In regard to the question of headache, Dr. Bessesen believed this is brought on by some change in intracranial pressure. An increase of intracranial pressure may be treated by 6 oz. of magnesium sulphate in the rectum. This may be administered intravenously using 2 c.c. of 50 per cent magnesium sulphate diluted to about a 20 per cent solution. If the lowering of pressure is not successful, the introduction of pituitrin may be found successful.

Dr. Bessesen said it seemed to him as though the deaths from spinal anesthesia have been considered as a mysterious matter. About the only thing one can base this on is the change in blood pressure. If the blood pressure is found to be reduced to a dangerous level then one must rely entirely on stimulating drugs

such as ephedrin or pituitrin, or the Trendelenburg position, or the introduction of fluid into the vein; the Trendelenburg and fluids being the more valuable. In cases of paralysis of the ileum, spinal anesthesia has been successful in relieving the ileus.

He felt the general impression was against the use of spinal in cesarean section, for the reason that in these operations one might anticipate more hemorrhage, which might result in a drop in blood pressure.

In regard to nausea, altering the level of the table will sometimes relieve this; also the use of 5 per cent carbon dioxide as advocated by Yandel Henderson.

Dr. Bessen said the use of spinal anesthesia is fairly well-established in the field of anesthesia.

Dr. H. O. MCPHEETERS said he was interested in what Dr. Cranmer said about spinal in cesarean section. He himself had been so much pleased with the results of spinal anesthesia in obstetrics. So far he had had only nine cases in which he had used it and in some of them it had worked beautifully. He had used "gravocaine" and with that the patient is put in the Fowler position. The directions on the box are to give the spinal with the patient upright and with the feet over the edge of the bed, and wait three or four minutes; but in actual use he had found it better to wait for ten to twelve minutes. The uterine contractions will be scarcely diminished and if they are violent or there is one tremendous pain right after another the labor will continue right on and the woman will hardly know she is having the baby. The relaxation of the perineum is ideal. Dr. McPheeters said he really believed that spinal is going to be the ideal anesthesia for obstetrics.

Dr. MANN asked about hemorrhage in these cases.

Dr. WEBB stated that he had an interesting experience with spinal anesthesia day before yesterday. He operated on a patient who had a perforated ulcer of the duodenum. The preoperative diagnosis was questionable; the signs were rather of an acute appendix or gallbladder. The patient had, however, a previous history of ulcer of the stomach. Before he opened the peritoneum he filled the incision with water as had been his custom for many years when perforation is suspected. If there is air in the cavity it will come up through the water and one can know that he must search for perforation of the gastrointestinal tract.

When the peritoneum was opened, no air bubbled through the water in the wound but the water merely went into the abdominal cavity due to the negative pressure produced by the spinal anesthesia and as a result he learned that this test was no longer useful when spinal anesthesia is used. The appendix was found to be acutely inflamed, surrounded with turbid fluid and with fibrin on its tip and the pathological report was "acute appendix." Because, however, of evidence of inflammation about the gallbladder, the incision was extended upward and the perforated ulcer of the duodenum was found and closed in the usual manner and the wound was closed without drainage.

Another point in connection with spinal anesthesia which Dr. Webb wished to bring out is that when

using spinal the surgeon expects to get through in a reasonable length of time and he should be able to rely on the observations of the anesthetist. He was of the opinion that the anesthetists of this city do not know as much as they might about spinal anesthesia and experience in observing it does not accumulate. He advocated adoption of a uniform blank through the city for the anesthetists' use so that they will be of more assistance to the surgeons in observing the cases while they are giving their attention to the surgery.

Dr. MCPHEETERS replied there had been no hemorrhage except in one case which he packed to be on the safe side. But he had had hemorrhage in other cases of the same type where he had used no anesthetic at all.

Dr. MANN stated that in looking over some of his own cases, while he had not done very many (he did his first case before the War), he had had no fatalities, but had sometimes been worried. In reviewing the literature, he had found that there have been a few cases of paraplegia following spinal anesthesia. There was one case reported in Europe in which the paraplegia was still present at the time the patient was discharged from the hospital. There was another case in which there was paraplegia which later cleared up. There was retention of urine and in one case the catheter had to be used over one year before the patient recovered his own power again. One man in Paris reported two cases of his own of ocular paresis and collected 84 others. Dr. Mann said one might possibly expect ocular paralysis where a high anesthetic was used but 26 of the cases of ocular paralysis were reported from a clinic in which over 1,500 spinal had been done and in which one of the rules laid down was never to operate above the diaphragm and always to give a low injection.

Regarding the fixation of the novocaine, Dr. Mann said that putting novocaine into spinal fluid makes a solution more heavy than when there was spinal fluid alone, and that is just what most of the spinal anesthetics are—novocaine crystals dissolved in spinal fluid. Then if the patient is turned on his back and in about 5 minutes or so the table is tipped with the patient's head down, that novocaine must be more or less fixed by that time so that it cannot travel, otherwise there is no limit as to where it might run to.

In one clinic there had been 8 deaths in about 11,000 spinal anesthetics. Four of the deaths were due to heart failure within a few minutes, and the other 4 with irritative lesions of ordinary spinal puncture, irritation of the meninges giving rise to headache, pain in the back and meningeal symptoms. Those occurred just a few days later and were attributed to the spinal anesthetic definitely by the man doing them.

Then there is the question of resuscitation. When there is syncope and heart failure, what are you going to do? Then respiration stops too. There has been some work done with injecting adrenalin directly into the heart, with resuscitation of the heart and return of the pulse. Dr. Mann also called attention to another very interesting report from Paris, of the use of caffeine after failure with adrenalin injected directly into

the heart. In this case they had injected camphorated oil and caffeine. They injected the heart with adrenalin and the needle moved a little but the respiration did not come back so they turned the patient over and injected caffeine, 50 ctg., into the spinal canal. Their statement was that respiration came back almost at once, and almost immediately with it the heart action. But the injection was cervicodorsal and they had used this region also for their original spinal analgesia.

Dr. Mann said one more thing in the reports interested him very much and that was that Leclerc in Dijon had made a study of cerebrospinal fluid one, two, three, four and six days after spinal injection. He studied 31 cases and found in 9 of them there was an increase in the lymphocytes without much increase in the polymorphonuclears except in one case. In 11 there was increase of albumin one and two days after, and in 15 cases he reported the sugar content was increased. Leclerc went on to say there could be a very definite relationship established between the headaches and the lymphocytosis; and they felt the headaches could be very definitely associated with the conditions in which there was an associated lymphocytosis. Of course there could be other causes too. They found no association in the cases with increase of albumen, and no association with increase in the sugar.

Dr. Webb said one hears a good deal about the "bad risk patients" in this connection; and he wondered how many of the patients are really bad risks. He thought most of them should be good risks unless the surgeon has a reputation for operation on bad risks. He felt a good risk patient deserved the anesthetic which will best enable the surgeon to work for the good of the operation to the patient. Occasionally the "good risk" patient dies from some effect of operation which could have been made easier and he thought in that respect spinal anesthesia deserved a good deal of regard. He did not think that the good risk patient should any longer be advocated as material for keeping up one's technic in use of local anesthesia.

Dr. M. J. LYNCH said he would like to know what percentage of the members present, if they had to have a herniotomy, would prefer spinal to local.

Dr. MANN asked for a vote as to the type of anesthesia each would desire in herniotomy on themselves:

- 6 voted for spinal
- 16 voted for local
- 0 voted for ethylene
- 0 voted for nitrous oxide
- 1 voted for ether

For removal of the gallbladder:

- 5 voted for local
- 13 voted for spinal
- 3 voted for ether
- 0 voted for gas—nitrous oxide
- 0 voted for ethylene

Many did not vote at all.

Dr. CRANMER, replying to Dr. Nordland's question about the dosage of the crystals, said they had been using 150 mg. in the average adult in all operations below the umbilicus, and in children this is reduced to 75 mg., 200 mg. being used in operations in the upper

abdomen. Until the first of this year they had not expanded the solution at all and he felt that their results had been just as good; he could not see that this added anything to the procedure. Of course one can get a higher anesthesia with expansion of the anesthetic solution. This expansion is called barbotage.

Dr. Cranmer believed the rate of injection is an important item, and they had tried injecting the solution $\frac{1}{2}$ c.c. a second. He said the height of the anesthesia depends on the amount of solution the crystals are dissolved in, and the speed of injection. The injection is made somewhere between the first and fourth lumbar interspaces, most of them in the third. They had not given ephedrin for a drop in the blood pressure because he thought it is contraindicated. He believed after the spinal injection, when one gets paralysis of the sympathetic nerve supply of the splanchnic vessels, the ephedrin will not affect those blood vessels at all. It reduces the volume of blood in general circulation by its effect on the other blood vessels by forcing more volume of blood into the dilated splanchnic vessels and renders the possibility of cerebral anemia even greater. He said one man had tried out various procedures for combating the drop in blood pressure, and it was reported in the last issue of the *American Journal of Surgery*. This man found that the intravenous injection of normal salt solution is the most reliable method of combating the blood pressure fall.

As Dr. Bessen has said, there has been considerable mystery about the deaths in spinal anesthesia. It is known, however, that in the larger clinics in the country the mortality rate has been reduced to almost nothing. Wayne Babcock has used it in 1,500 cases with no anesthetic mortality. Dr. Cranmer said he understood there had been some deaths in Minneapolis from spinal anesthesia but he had not talked with any of the men about the cases. One patient, he understood, went through the operation all right and was sent down on the cart with the head lowered. The patient was then put in a Fowler bed and the head of the bed raised. The resident came along and saw the patient's condition and endeavored to lower the head of the bed but the crank did not fit and he was unable to get the head down soon enough and the patient passed out. Dr. Cranmer felt that one could not blame the spinal anesthetic for that death, and thought it was just a mistake in proper handling. He felt that it is just as important for one to know the proper handling of the patient as it is to know how much anesthetic to use. The cause of death is cerebral anemia. It was formerly thought that it was due to the fact that the solution injected into the spinal canal gravitated through the spinal fluid and paralyzed the medullary centers. The work of Koster & Kashmann reported in S. G. & O. about two years ago proves that could not be the cause of death. They applied cotton saturated in 10 per cent novocaine to the medulla of animals without causing death.

Dr. Cranmer said he wished to add that the preparation of this paper was in part by Dr. Carl Henrikson, a Fellow in Surgery at the University, who had worked with him in going over the histories of the patients

and making the graphs, etc. The paper was presented jointly by Dr. Henrikson and Dr. Cranmer.

DR. ARTHUR T. MANN, retiring President, then read his presidential address, entitled "A Short Address on the Passing Year," as follows:

PRESIDENT'S ADDRESS

It is fitting that as President of the Minneapolis Surgical Society I should say a few words now at the close of our interesting year.

I appreciate highly the honor you have conferred upon me in making me your president. It has been an inspiration to have been in close association with such an able body of men as compose this Society; men who are so much in earnest, whose ideals are high and whose accomplishments are steadily increasing. The impetus you have already given to the Society and the work you stand ready to do for it, give promise for a steady growth in its field of usefulness and an enduring increase in its sphere of influence.

Fully aware that the program tonight is a long one, I shall endeavor to confine my remarks and make them as brief as is suitable to the occasion.

Our programs have been full, they have been of high grade and they have been constantly interesting, a fact that has been shown by our increasing attendance, by the value and the high tone shown in the discussions. We have had presentations that would have honored any surgical society. They have been varied and they have been constant. There have been given the results of much original work of considerable value, painstaking work, carefully carried through, thoughtfully considered and presented in an interesting and attractive form. The moving picture reels and the many lantern slides which have been shown have helped to make the presentations effective. The case reports have been prepared with great care and have added much to the range of the programs.

The material for the programs has been so abundant that it has been impossible to include it all in the programs of the year. So much must go over into the next year that all those who wish for a place on the program may find some difficulty in arranging for it. You should keep this in mind and ask for your places early.

During the present year there has been one evening given over to a clinic and one, our Annual Banquet, with an invited guest of distinction to deliver the surgical address of the year. This seems a good custom to follow.

The clinic, this year, was given at the University Hospital. This clinic, presented by the Surgical Department, with the abundance of the material offered, might well have occupied two evenings. This is the only criticism to offer, for the thirteen speakers on the program had their material well organized and their presentations were admirable.

Our guest speaker, Dr. Clay Ray Murray, of New York, not only made himself felt by giving a brilliant address at the Banquet, but extended his influence widely by giving an address before the Hennepin county Medical Society, another address before the Medical School at the University, and by giving a thorough-

ly appreciated clinic on "The Modern Treatment of Fractures" to the profession at large, at the Minneapolis General Hospital. The Surgical Society cannot help but be uplifted by bringing here such a man as Dr. Murray.

However, I feel that the usual meetings of the year should be given over to the members of the Society. Those who prepare papers gain more benefit and the Society will have a more substantial growth than in any other way.

To touch some of the other high spots of the year: We have considered the purchase of a lantern of our own and have rejected the idea as we can freely use the lantern here. But we have purchased one of the best movable screens on the market so we can show our pictures anywhere. The transactions of the Society are printed regularly in excellent form in the Medical Journals. And what seems to me to be one of our most important undertakings is in the hands of a committee earnestly working on plans whereby the difficulties and the differences which arise in the settlement of industrial cases and accident cases may be smoothed out and the work of the State Industrial Commission made more equitable for the doctors who are concerned in the care of these cases.

Before closing this brief address, I wish to point out that we are accomplishing one of the main reasons for which this Society exists, one without which it would fail to justify its continuance. And that is the promotion of good fellowship among its members, a better understanding of the surgeons of this city, among whom we work. Nothing can accomplish this so well as the constant association with one another, giving birth as it does to a better understanding of the many fine qualities which these men possess, their earnestness, their high ideals, their right-mindedness. I know of no finer men, in any city, anywhere, than are to be found among the members of this Society.

The meeting adjourned.

H. O. MCPHEETERS, M.D., *Secretary*.

REFINED ANTIPNEUMOCOCCUS SERUM

Since the discovery of the etiologic relationship of the pneumococcus to pneumonia, the search for an effective antipneumococcus serum has continued unabated. Little progress was made in this direction until 1913, when the biologic classification of pneumococci by Dochez and Gillespie provided a rational basis for modern serum therapy in this disease. Reports on the use of refined and concentrated serum preparations bring evidence showing that a considerable reduction in the mortality rate of type I pneumonia is secured by the use of these preparations. Experiments with the type II pneumonia and particularly types III and IV were not favorable to the use of preparations representing these types. In conformity with the evidence, the Council on Pharmacy and Chemistry accepts antipneumococcus serum representing type I but does not accept serums representing other types or mixtures of all types, holding that type I serum alone is worthy of clinical trial. (Jour. A. M. A., May 2, 1931, p. 1505.)

PROGRESS

Abstracts to be submitted to Section Supervisors.

Members are urged to abstract valuable articles which they run across in their reading and send the abstracts to the physicians in charge of the respective sections. In order to avoid duplication it would be well to communicate with one of the section supervisors before the article is abstracted.

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EYE, EAR, NOSE AND THROAT

CHRONIC MAXILLARY SINUSITIS: Walter Stevenson, Quincy, Illinois (Arch. of Otolaryngology, No. 4, Vol. 13, April, 1931). This comprehensive article deals in detail with 192 cases that came to operation, and explodes the old adage, "Once a sinus always a sinus."

The chief complaints of patients in order of frequency were as follows:

1. Recurrent head colds—102
 2. Nasal discharge and post-nasal dropping—63
 3. Pain, usually in maxillary region—30
- Five complained of frontal headache.

Toothache was a common complaint. Several patients had no head symptoms, but had been referred by internists searching for focal infection. Sixteen per cent (thirty-two cases) had originated following dental extractions:

Under diagnosis, nussellumination, X-ray and lavage are discussed. The author thinks the first as valuable as the second. Lavage should not be considered negative unless the washings have been proved so by microscopic examination.

Under treatment the author shows that none of the chronic cases were permanently benefited by puncture and lavage: The Krause (intra-nasal window) was done in all but twenty-two cases. In the remainder a radical operation was needed (Caldwell-Luc). This number (twenty-two) includes five cases which had had the Krause operation done previously, but without a satisfactory result.

The author is not in favor of postoperative washings of the cavity. Shrinking, mild suction and attention to exuberant granulations with silver, gives satisfactory results.

RESULTS

Complete recovery occurred in all but nine cases, which were lost to observation. Focal disease, with the exception of five asthmatics, was relieved or cured.

Details are given concerning operative technic, pathological findings, both gross and microscopic, and a special section in regard to nasal polyps. Several case reports follow. The entire article impresses one as having been written by a man who is absolutely sure of his ground, and with the courage to apply fundamental surgical principles to sinus surgery. Apparently his results justify his methods. The author's summary is given verbatim.

SUMMARY

1. Intranasal surgical intervention is the operation of choice for a primary attack in all chronic infections of the maxillary sinus. Ninety-four and two-tenths per cent of my patients recovered completely following these procedures.

2. The Caldwell-Luc operation has proved satisfactory as a radical operative measure.

3. Transillumination and the roentgen rays are equally effective as diagnostic aids.

4. Except in selected cases, dry treatment is effective in the after-care, and, in my opinion, is the better procedure.

5. Contrary to popular lay opinion, operative treatment for maxillary sinusitis is justified by the results.

6. Focal disease seems to follow this type of infection.

7. In the author's opinion, nasal polyps are associated with maxillary disease more often than with infection of any other sinus, and careful investigation of the maxillary sinus should be made in every case of apparent hyperplastic ethmoiditis. Conservative surgical intervention usually suffices in these cases.

8. Sewall's method of estimating the cytologic content of the maxillary antrum seems to be a distinct advance in the diagnosis of this disease.

9. Injudicious curettement of the sockets of the teeth opening into the maxillary sinus is to be condemned. Curettement should always be followed by suitable surgical intervention to close the wound.

M. W. WHEELER, M.D.

INTRACAPSULAR CATARACT EXTRACTION:

Leo F. McAndrews, M.D., Philadelphia (Arch. of Ophthal., Jan., 1931, Vol. 5, No. 1). Three methods of operation are considered (1) Smith, (2) Kalt forceps, (3) Barraquer suction.

Each method is considered in detail with statistics on complications given very fully.

The author is of the opinion that the Smith operation is losing ground and gives the chief disadvantage as frequent loss of vitreous and drawn-up pupil. Advantages given are those of freedom from iritis, lack of secondary operation, and no limit as to type or maturity of cataract.

The Barraquer operation demands special training and experience and is not popular in this country. It can be regarded as being in the experimental stage.

The Kalt forceps method seems to be the most popular method. The originator tears away a large piece of capsule, but some men remove lens intact. An objection is the pull on the ciliary body.

A review of the recent Congress in Amsterdam gives the "modern cataract operation" as being extraction in the capsule with peripheral iridectomy and suture of conjunctival flap.

This article is voluminous and very well written. If there could be any criticism it would be that conclusions on comparative popularity of various operations were not based on the opinions of enough men. A comprehensive questionnaire with wide circulation might have brought out different deductions, but nevertheless it is a very worth-while addition to cataract literature.

K. C. WOLD, M.D.

A STUDY OF CALCIUM IN RELATION TO CATARACT—REPORT OF RESEARCH. Daniel B. Kirby, Fellow in Ophthalmology (Presession Volume, The American Academy of Ophthalmology and Otolaryngology, Page 89, 1930). Cataract appears in various forms and the causes of each form are undoubtedly different and dependent on a number of conditions. Cataract, however, is frequently associated with tetany and parathyroid deficiency. In tetany there is usually, and in parathyroid deficiency there is always, a disturbance of calcium metabolism. For this reason an attempt was made to determine the relation of calcium metabolism to cataract, and by this means, if possible, to improve the non-surgical treatment.

The steady level of the calcium in the circulating blood is maintained by the action of the secretion of the parathyroid. When the parathyroid secretion is deficient the serum calcium is found to be below normal. The best parathyroid extract for use in treating calcium deficiency of the blood is parathormone, which is prepared by weak acid hydrolysis of the parathyroids of the ox.

Undoubtedly calcium deficiency in cases of infantile tetany is the cause of the cataracts. Increased knowledge regarding the treatment of infantile tetany has led to a great decrease in the number of cataracts due to this condition. In cases of tetany cataract there is a

reduction in the serum, aqueous, and lens calcium content. Once the cataract has formed, administration of calcium and parathormone have no influence in removing the opacity from the lens.

In the lens of senile cataract calcium is greatly increased. The calcium deposition results from:

1. Very slow lens tissue death, dependent on nutritional deficiency.
2. Degeneration of the lens protein with lipid by-products.
3. Local concentration of calcium by absorption to the large molecules of the lipoids.
4. Deposition of this calcium by change in the pH toward the alkaline side.

Two series of cases of senile cataract were investigated, one at Bellevue Hospital and the other at the Vanderbilt Clinic. In these cases no calcium deficiency was found in the blood. In some of the patients there was a tendency to hypercalcemia.

It was found that there was no necessity for the administration of calcium salts to patients with cataract, as their blood calcium was normal or very close to normal. Likewise there was no indication for administration of parathormone.

Parathormone was administered to three different series of senile cataracts over varying periods. No evidence of absorption or improvement in vision was observed.

JAMES BRUSEGARD.

HERPES AND ALLIED CONDITIONS: Ralph I. Lloyd (Presession Volume, The American Academy of Ophthalmology and Otolaryngology, Page 161, 1930). Hutchinson first described herpes zoster ophthalmicus in 1866. Since this time other symptoms have been added in the literature to his original description of the disease. Some of these symptoms are: pain in the cutaneous area before the skin eruption, corneal ulceration which appears after the skin eruption, increase of temperature and sweating of the skin of the affected area. Microscopic examination of the Gasserian ganglion shows round cell infiltration, small hemorrhages, and degeneration of the nerve fibers running to the first division of the fifth nerve.

Herpes cornea febrilis is milder than the zoster type. The blister of this disease contains a virus that can transmit the disease to the rabbit cornea, while the zoster blister does not do this.

Keratitis dendritica is an eruption of a group of very fine blisters that lose their epithelial covering and link up to form a linear ulcer resembling the small branch of a tree. It frequently follows an attack of influenza.

Keratitis bullosa has also been placed in the herpetic group.

Animal experimentation and exfoliation after apparent healing strongly suggest that traumatic corneal ulcer belongs in this group. In this case the virus is believed to be present in the subconjunctival sac, lying inert until it is carried beneath the epithelium by the injury.

Keratitis punctata superficialis is a very rare disease which belongs to the herpetic group. It consists of minute lesions scattered over the cornea which tend to remain for some time. It never involves the deeper layers and it is frequently associated with bronchial conditions.

Practically every type of herpes shows a lowered sensitivity of the cornea; for this reason it is very important to keep the affected eye constantly bandaged, both indoors and outside. Radiant dry heat, and $\frac{1}{2}$ or 1 per cent solution of optochin locally should be used. In severe types the Shahan thermophore may also be used. In very severe cases of herpes zoster ophthalmicus an application of the X-ray is the only thing that will relieve pain. Most of the severe cases are accompanied by an increase of intra-ocular tension and the X-ray exerts a favorable influence upon the tension.

The after-effects of severe herpes are: deep and wide corneal scarring, anterior or posterior synechiae, thinning of the iris, change in color of the iris, partial dilatation of the pupil, and sometimes optic nerve atrophy and paralysis of some of the muscles supplied by the third nerve.

The outstanding symptom of all forms of herpes is lowered sensitivity of the cornea, which can be detected by drawing a wisp of cotton across the cornea. Corneal sensation returns slowly. Glaucoma of lesser degrees is frequently found.

Much animal experimentation has been done with the virus of herpes febrilis and the following facts have been discovered about it: the virus does not stain, passes a filter, can be carried from one rabbit to another, is easily killed by heat, and is effective in weak dilutions.

JAMES BRUSEGARD.

MEDICINE

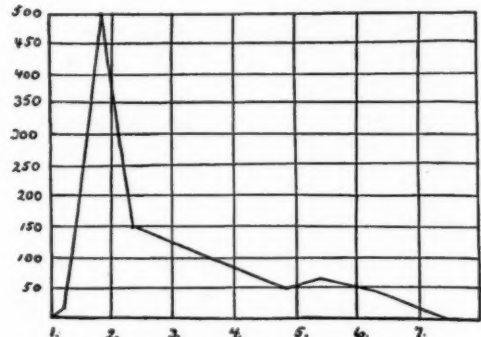
TUBERCULOSIS ABSTRACTS*

Insomnia is a by-product of our present high-pressure manner of living. Thanks to modern inventions and customs, we are today enabled to enjoy, after a full day's work, another day of recreation which our forebears spent in relaxation or sleep. Normal drowsiness in the evening is fought off in preparation for a night of entertainment. When we finally do retire, sleep will not be successfully wooed. For the tuberculous individual, insomnia is further aggravated by toxemia, discomfort, fear, and worry. Yet rest above all things is necessary for his recovery. W. C. Service outlines the causes, effects, and treatment of insomnia in the April, 1931, American Review of Tuberculosis, from which the following abstracts are derived:

INSOMNIA IN TUBERCULOSIS

Normal sleep is characterized by complete loss of consciousness. The power to make conscious move-

ments wanes first, after which follows the loss of use of the special senses. All voluntary muscles are relaxed, respiration becomes deeper and slower, pulse frequency is lessened, the blood pressure falls, the temperature is lower, secretions are diminished. Of the special senses, hearing is most easily aroused during sleep.



CURVE OF INTENSITY OF SLEEP ACCORDING TO MONNINGHOFF AND PIESBERGEN

The figures along the ordinate show the relative intensity of sleep, measured in milligram-millimeters, expressing the intensity of the sound caused by a falling body necessary to awaken the sleeper. (Modified from Howell's Textbook of Physiology.)

The intensity or depth of sleep increases rapidly during the first two hours and then drops rapidly again, so that by the third hour the sleeper is very near the margin of consciousness, and from that point on the depth of sleep becomes less until awakening occurs.

Insomnia is the inability to secure a sufficiency of normal sleep under favorable conditions. The etiological factors may be grouped under physiological causes, such as pain, dyspnea, cough, pyrexia, gastrointestinal disturbances, toxic states, etc., and psychological causes such as anxiety, neurasthenia, hysteria, confusional states, and compulsion neuroses. True primary insomnia probably never occurs; every complaint of sleeplessness must be investigated for its cause.

TYPES OF INSOMNIA

Five general types of insomnia may be easily recognized, as follows:

1. *Complete absence of sleep.* In tuberculosis, this is most commonly seen during a miliary or acute toxic phase with fever and progressive disease. It is usually of short duration, as complete rest tends to lessen the toxemia, which is usually followed by partial insomnia or even natural sleep.

2. *Sleep on retiring for two or three hours and then wakefulness for the remainder of the night.* This condition is more commonly seen in cases of moderate toxemia. After a profound sleep for about two hours, there is a partial return to near-consciousness. The patient may awaken startled, all senses alert, and without the slightest desire to sleep. After a night of wakefulness, early morning may bring a short sleep from fatigue.

*Reprinted from *Tuberculosis Abstracts*, a review for physicians, issued monthly by the National Tuberculosis Association, Vol. IV, No. 7, July, 1931.

3. *Wakefulness for two hours or longer on retiring and finally sleep.* Cases which suffer in this manner are usually the ones who have developed conflicts, especially that of fear. Under the guidance of a sympathetic doctor who understands psychological problems, these patients do extremely well. Fear is an emotion; an emotion is the determining factor of a complex; a complex is an idea plus an emotion. When one complex meets another that is opposed to it, a conflict results. Either a complex or a conflict is, in itself, quite capable of producing insomnia.

4. *Wakefulness on retiring, sleep for two or three hours, and then wakefulness the remainder of the night.* The group so affected represents a combination of the second and third groups. Their inability to sleep on retiring is due to a development of a fear complex or conflict. The inability to stay asleep may be partly due to neuroses, or in part or entirely to the previous damaging effects of the tuberculous toxin.

5. *Dreams: disturbed or restless sleep.* Patients so afflicted usually complain of having a "restless night." Their sleep may be broken by dreams or they may complain of becoming tired in one position and the frequent changing of position may not give them the restful sleep they desire. A heightened irritability of their nervous centers brings their threshold of sleep very near their threshold of consciousness and it consequently takes only the slightest stimulation to arouse them.

EFFECTS OF INSOMNIA

Insomnia affects the body as a whole. After a few restless nights, one notices that the patient is more irritable and complaining than usual. He is restless and finds it difficult to lie in bed. He feels a general lassitude but the nervous irritation prevents relaxation. There is a tired feeling about the eyes and a sense of muscle strain. After several days, extreme tiredness and depression are experienced on arising or weariness may develop a few hours later. Headache may develop in the afternoon, along with sweating, clammy hands, cold feet, and vasomotor disturbances. There may be an increase of fever and of pulse rate. A distressing effect of insomnia is gastro-intestinal disturbances. Food seems to lose its flavor, anorexia may become so marked that there is positive loathing for food. Alvarez has described this condition as a purely nervous indigestion and suggests for its treatment psychotherapy, sedatives, hypnotics, and special diets.

TREATMENT

Accurate diagnosis is essential. When due to physiological causes, a simple correction of them is indicated. Some cases will demand systematic study and sympathetic understanding. The patient in bed is not necessarily at rest. During the state of fatigue, the slightest physical or mental exertion must be considered excessive. Progressive relaxation as described by Jacobson, a method designed to teach the patient to overcome "residual tension," is of great value (see "Tuberculosis Abstract," March, 1930).

Hypnotics and sedatives have been much neglected

and often misused. Morphine is a good pain reliever but a poor sleep producer. The author has used several somnifacients and finds that each of them has certain advantages under given conditions. He selects four drugs, such as paraldehyde, dial, bromural, and amytal, and uses them in succession but in equivalent dosage. Each drug is given about three times in succession and then another, until all four have been given, after which the process may be repeated. By this method, a variety is obtained and there is slight danger of developing a tolerance, even if continued indefinitely.

Drug therapy is aided by prolonged tepid baths, general massage, and alcoholic back rubs. Warm or hot drinks at bedtime seem to have a soothing effect in many cases. Black eye-masks prevent the patients being awakened by the light in the morning. Reassurance, or the inspiration of confidence, is, of course, necessary. Low protein diet is beneficial in some cases. Fresh air is a simple and useful remedy. In addition, some cases may profit by bromides, suggestion, persuasion, hypnotism, and perhaps by the analysis of Freud, but limitations and objections are common and the gap in therapy is apparent.—*Insomnia in Tuberculosis, W. C. Service, Am. Rev. of Tuberc., April, 1931.*

CASES OF PULMONARY TUBERCULOSIS WITH EARLY CAVITY FORMATION AND FEW SYMPTOMS: E. Buc (Revue de la Tuberculose, 1930, X, 1096). "In certain cases one finds completely softened tubercles in the midst of crepitant lung tissue and in these cases the walls of the cavities are smooth and seem to be formed only by lung tissue a little compressed or thickened but without any trace of a false membrane." So wrote Laennec, nearly a hundred years ago.

Buc states that cavities are not always the result of the breaking down of large caseous foci and claims that they may appear very quickly, even in a few days, at the very start of a rapidly developing tuberculosis; in fact, they are often the first demonstrable lesions in cases that eventually become chronic. Without doubt from an anatomic point of view, the loss of substance is caused by the breaking down of a small caseous area, but this produces practically no clinical phenomena.

This cavity is almost always an unexpected discovery during an X-ray examination. As noted above, very few symptoms accompany its formation. There may be a persistent cough which annoys the patient or a small amount of sputum which is very viscid. Sometimes this expectoration is present at the very beginning; in other cases it is preceded by a few acute symptoms, a slight hemoptysis, or a febrile attack lasting a few days, or loss of weight and strength may be noted.

These symptoms are likewise often of very recent origin and have been present only a few weeks before the X-ray shows a cavity about which there can be no doubt, of considerable size. At this time the cavity is the principal lesion seen, it is isolated and solitary.

The broncho-vascular trunks may appear thickened but the parenchyma appears practically normal. Consecutive films show the formation and increase in size of such cavities. At first their contours may be faint and indistinct while the surrounding tissue is not much different from the normal lung. This is Jacquerod's first stage of cavity formation. In other cases, although symptoms have only lasted a few weeks, the cavity is already large, with definite borders, and it is surrounded by an area of lessened density. One might think the cavity was much older than the history of the case warrants. It is impossible to say from the film how long the cavity has existed, but there can be no doubt that it may appear without preceding consolidation of any great extent.

Outside of X-ray study, sputum examination is the most useful diagnostic procedure in these cases. The amount of sputum is usually very slight and patients may even say they do not expectorate; others will admit that they occasionally expectorate a small amount. Sometimes examination of feces will give positive results. When the cavity is present and enlarging, tubercle bacilli are usually found in spite of the paucity of symptoms. The syndrome really consists of three elements: X-ray evidence of cavity, positive sputum and comparatively good general condition. Such cavities may persist unchanged even for an entire year or more. Increase in weight may mislead one as to the seriousness of the condition. The spontaneous disappearance of such cavities is much less rare than is the case with other cavities due to tuberculosis. Often no trace remains. Of twelve cases, six underwent spontaneous cure under sanatorium care. Symphysis of the pleura seems to occur rather frequently in cases with cavities of the type under consideration. Artificial pneumothorax and phrenicectomy are valuable when there is no tendency to spontaneous disappearance, but they are not employed until a period of observation of several months at the sanatorium has demonstrated that no such tendency is present. In suitable cases they are most valuable, as they are followed by rapid disappearance of tubercle bacilli from the sputum. This is very important, since often on account of the appearance of good health and freedom from symptoms these patients are very dangerous to those who live with them.

A. T. LAIRD, M.D.

PEDIATRICS

THE USE OF RESPIRATORY VACCINE IN THE TREATMENT OF PNEUMONIA IN CHILDREN: Roy P. Forbes, M.D., Denver, Colo., and Charles L. Steinberg, M.D., St. Paul, Minn. (Arch. of Ped., Vol. XLVIII, No. 4, April, 1931.) Vaccine therapy in pneumonia as yet occupies no definite place in the armamentarium of the majority of physicians.

Lambert is apparently the first one to report the use of large doses of vaccine at frequent intervals in the treatment of pneumonia. Lambert's dosage in adults

was one to two c.c. of a mixed vaccine containing 1,000 million organisms per c.c. and included:

Pfeiffer's bacillus.....	200 million per c.c.
Micrococcus catarrhalis	200 million per c.c.
Staphylococcus aureus	200 million per c.c.
Staphylococcus albus	200 million per c.c.
Pneumococcus	100 million per c.c.
Streptococcus	100 million per c.c.

The authors have followed Lambert's technic and give the vaccine routinely at six-hour intervals until lysis occurs, then at 12- or 24-hour intervals for a day or two. The concentrated vaccine which they have been using contains 2,000 million bacteria to the cubic centimeter, or twice the count of Lambert's vaccine. It is prepared by a Pacific Coast laboratory; and from .2 to .5 c.c. is given at six-hour intervals.

The vaccine treated cases frequently appeared less toxic 24 hours after the institution of vaccine therapy. Children who were previously stuporous and refusing all fluids enjoyed a more natural sleep and rest and took fluids when offered.

In uncomplicated cases, the lysis to normal temperature on the fourth or fifth day was noted.

In a series of 50 cases of pneumonia in children treated with large doses of respiratory vaccine at six-hour intervals, a mortality of 18.7 per cent was noted compared with a mortality of 27.3 per cent in the control series of 66 cases. When treatment was instituted within 48 hours of the onset, the mortality noted was 4.6 per cent as compared to 20.6 per cent in the control series. The evidence presented tends to prove that the treatment possesses real value, especially in early pneumonitis. The results in this series are strikingly similar to those obtained by Lambert and by Sutton in adults.

R. N. ANDREWS, M.D.

EFFICIENCY OF SCARLET FEVER ANTI-TOXIN: Taketo Tsuda, Mukden, Manchuria, China. (Amer. Jour. of Dis. of Children, Vol. 41, April, 1931, No. 4.) Since Dick and Dochez published their reports on an antitoxin for scarlatina, the use of antitoxin in the treatment of this disease has been generally adopted, and the majority of papers dealing with the subject seem to confirm the belief that antitoxin is effective, at least in removing the toxic symptoms, when an appropriate dose is prescribed at a proper stage of the disease. Prepared by the Hygienic Research Institute, South Manchuria Railway Company, Dairen, 1 c.c. of this preparation is said to neutralize more than 1,000 skin test doses of toxin; the author uses uniformly 40 c.c. for an injection.

The statistics suggest that an injection of a sufficient dose, given within twenty-four hours after the onset of the disease, brings about an absolutely reliable effect, as it reveals a 100 per cent recovery; also that the earlier the treatment, the better the results. Also, an injection within twenty-four hours after the onset prevents complications, and there will be more frequent cases of complications when patients are treated later. In this respect, the effect of the antitoxin is worthy of high appreciation.

The injection should be given as soon as possible, for the reason that the longer the treatment is postponed the less the influence of the antitoxin; no effect is to be expected when a patient is given injections seventy-two hours after the onset of the disease.

R. N. ANDREWS, M.D.

TUBERCLE BACILLI IN CHILDREN WITH ERYTHEMA NODOSUM: Arvid Wallgren, M.D., Göteborg, Sweden (*Amer. Jour. of Dis. of Children*, Vol. 41, No. 4, April, 1931). The idea that erythema nodosum in children depends chiefly on a tuberculous infection has gained ground immensely during the last ten years.

Children with erythema nodosum usually do not cough. It follows that if one wishes to detect tubercle bacilli during this period of the tuberculous disease, they must be looked for in the stomach.

During the past year, the author had an opportunity to examine forty children with erythema nodosum, all but three of whom reacted positively to tuberculin. Of the thirty-seven children who reacted positively to tuberculin, seventeen had tubercle bacilli; in the remaining twenty the results of bacteriologic examination were negative. In the majority of the cases with positive tuberculin reactions there were more or less enlarged hilar shadows.

To sum up the whole question, it follows that children with erythema nodosum who give positive tuberculin reactions often excrete tubercle bacilli. This result proves that enlarged hilar shadows in the positive cases are of tuberculous etiology, and that the children really are suffering from tuberculosis; this ought to be regarded as an argument in favor of the tuberculous nature of the erythema. At the same time these researches yield the valuable information that children with erythema nodosum are often spreaders of infection, and that other children ought to be protected from contamination. Children with erythema nodosum must not go to school for a certain length of time after the disease has developed, and if they are admitted to a hospital they should be isolated.

R. N. ANDREWS, M.D.

ANTROTOMY IN CHILDREN DURING TONSILLECTOMY: Dr. Simon Stein, New York (*The Laryngoscope*, Vol. XLI, Feb. 1931, No. 2). Sinusitis is frequently present and is responsible for a great many diseases and complications of childhood.

This preliminary report is based upon a group of 443 cases of antral infection brought to the author's office for tonsillectomy. The age ranged from one and one-third to ten years. These cases had a sinusitis in addition to the diseased tonsils and adenoids, and the sinuses were drained at the time of tonsillectomy and adenoidectomy.

The symptoms of sinus infection in children are persistent nasal discharge, nasal block, repeated colds, temperature, loss of appetite, poor development, reflex cough, and anemia.

Amongst children who had their tonsils and adenoids removed during the three years previous to this series, 116 out of 140 came back with a persistence of symptoms, which on examination proved to be due to sinus infection.

From then on antrotomy was done in 443 cases at the same time as the tonsillectomy and after one week the following results were noted:

1. The discharge had materially decreased in 103 cases.
2. The discharge had entirely disappeared in 250 cases.
3. The discharge had changed in character from a thick mucous or purulent one to a more fluid type in 90 cases.
4. The symptoms had disappeared entirely in 250 cases.
5. The symptoms were lessened in severity in 193 cases.

The 193 cases who still showed evidence of the infection responded to simple suction and baking under the infra-red lamp, within a period of from one week to three months.

Conclusions:

1. Sinusitis is a very common occurrence in children, and may appear at birth or at any time thereafter.
2. The symptoms are those of nasal obstruction, with discharge, headache, coughs, temperature, under-development, and systemic involvement such as joints or pyelitis, etc.
3. The case showing just a small amount of mucoid discharge may be just as severe in its effect as the one with a thin purulent one.
4. In this group of 443 cases the antral sinuses were drained in all cases brought in with diseased tonsils and adenoids, when either the history or physical findings pointed to a sinus involvement, whether mild or severe in character. This procedure is a perfectly safe one, and has given no untoward results.
5. Constitutional treatment is very important. One should always remember coincident allergic or other conditions which, with the sinuses, give the symptoms of the disease.

LUCIAN G. CULVER, M.D.

POST-VACCINAL ENCEPHALITIS IN INFANCY: F. T. McNair Scott (*Brit. Jour. Child. Dis.*, 27:17, Dec., 1930). Scott reports the occurrence of post-vaccinal encephalitis developing ten days after vaccination of an infant six months of age. Eight other patients were vaccinated from the same supply of lymph, two being infants of four months, and six being adults whose ages ranged from sixteen to forty-six years. In none of these cases was any complication noted. The case reported by Scott recovered, appearing perfectly normal mentally and physically ten weeks after the onset of the condition. Scott calls attention to the fact that eleven cases of post-vaccinal encephalitis in infants under one year of age have been reported in England since 1923. In Germany and Holland twelve

and three cases, respectively, have been recorded as occurring in infancy. A few similar cases are also reported from Sweden, France, Switzerland, and Poland. Scott notes that the cases reported fall into the following five groups according to their clinical picture:

1. Meningitis type, in which symptoms are mainly those of meningitis.
2. Cortical type, in which the outstanding and often the only clinical manifestation is convulsions.
3. Type resembling tetanus, in which signs are trismus and opisthotonos.
4. Brain stem type, resembling encephalitis lethargica, and characterized by drowsiness, ocular palsies, facial palsy and choreic or tonic movements of the limbs.
5. Lower motor neuron type, resembling poliomyelitis.

The mortality varies considerably with the type of case, being much higher in the first three groups (66 to 75 per cent) than in the other two. The condition occurs with exceeding rarity in children, showing an incidence in Europe as estimated by Scott of one case in approximately every 1,800,000 vaccinations.

The author concludes that infants are very liable to small-pox and that the mortality is high, whereas infants are rarely attacked by post-vaccinal encephalitis. It seems right, therefore, to urge the continuation of compulsory vaccination in infancy if performed with precautionary measures as outlined. He ends with the significant quotation from Sir George Newman: "Cases of post-vaccinal encephalitis are more frequent in countries where vaccination is declining than in those in which the proportion of vaccinated persons is high."

C. A. STEWART, M.D.

THE TREATMENT OF EPIDEMIC MENINGITIS: J. B. Neal (New York State Med. Jour., 30:79, Jan., 1930). The Meningitis Division of the Research Laboratory of the New York City Health Department, of which Dr. Neal is a member, does not look with favor upon intensive methods of treatment of meningitis which includes intravenous and intramuscular combined with intraspinal injection of antimeningococcic serum. Their experience has been rather extensive, including the supervision of the care of more than 1,000 cases of epidemic meningitis during the past nineteen years.

The plan of treatment instituted calls for the immediate administration of serum whenever a cloudy spinal fluid is found. Intraspinal injections in amounts of 20 c.c. are given daily thereafter, until at least two successive spinal fluids show no organisms by smear or culture. It is desirable to drain the subarachnoid space as completely as possible, removing 50 to 60 c.c. if possible. The drainage should be done slowly and carefully, especially if the fluid is under considerable pressure. When large amounts of spinal fluid are removed, more serum may be administered. The dosage of antimeningococcic serum given intraspinally depends on the amount of fluid withdrawn, and on the ease with which the serum runs in by gravity. This applies to young as well as to older patients; thus graduated doses adjusted to age are not used for small children. The only

condition for which spinal puncture and serum administration is done more often than once every twenty-four hours is limited to cases in which the intraspinal pressure is greatly increased.

At least four doses are usually required, and the average patient received six to eight injections. If symptoms do not improve after two sterile fluids have been obtained, more serum is given. Intravenous and intramuscular injections are used only in cases of meningococcic septicemia, or in cases of meningitis with positive blood cultures or a rash that tends to persist and recur.

From the standpoint of prognosis the cell count itself is of little value, since the outlook is bad if the fluid becomes clear and the organisms persist. A return of the spinal fluid sugar to normal is a favorable sign.

In blocked cases serum may be administered by ventricular taps or cisternal punctures. Neal prefers ventricular taps, since she has seen no immediate harm from such procedures, whereas death from hemorrhage occasionally followed cisternal puncture.

C. A. STEWART, M.D.

SURGERY

IMMEDIATE AND REMOTE END-RESULTS FOLLOWING OPERATIONS ON THE BILIARY PASSAGES: Hans Kment (Bruns Beitrage zur klinischen Chirurgie, 1930:150:534). The author points out that disease of the biliary passages treated by surgical methods usually has a lower mortality—9.22 per cent (Hotz)—than when treated by purely medical non-surgical methods, as 8 to 10 per cent (Tollquist), 10.2 per cent (Jogluttis), 10 per cent (Binder) and 15 per cent (Naunyn).

(A) IMMEDIATE RESULTS FOLLOWING OPERATION

The series of cases discussed in this paper comprises those in which operation was performed in this clinic between 1912 and 1924 and totalled 427 in number. There were twenty-nine deaths, making a mortality of 6.79 per cent exclusive of cases complicated by carcinoma and pancreatitis. This series included many of Schloffer's private cases. The author compared the above mortality with that of Florch, Suermondt and Enderlens, which varied from 4.5 to 6.6 per cent, and with that of Brentano, Hueck and Fink, which varied from 13.2 per cent to 14.7 per cent.

Many of the cases in this series were serious, with common duct occlusion. This was attributed to the close proximity of the Karlsbad and other watering places. Patients sought non-surgical relief at these places, deferred operation and when finally operated were in advanced stages of biliary tract disease. The average duration of the disease in Schloffer's private cases at the time of operation was six years with a mortality of 9.3 per cent compared with the charity cases of the clinic, in whom the average duration was 3.5 years with a mortality of 5.92 per cent.

Of the above twenty-nine deaths, six were due to peritonitis, five were due to cholangitis, four pneumonia, one pulmonary gangrene after pneumonia, seven

cardiac disease, two shock, one hemorrhage, two parotitis, and pyemia and one pulmonary tuberculosis.

One-third as many deaths occur if operation is performed after the first attack of gall-bladder disease (Finsterer, Anschütz).

Of the above 427 cases, 213 were interval cases in which simple cholecystectomy was done. The mortality was 1.4 per cent. When in addition to simple cholecystectomy, appendectomy, gastric resection, pyloroplasty, etc., were done, the mortality rose to 2.04 per cent.

When operation was performed for acute urgent cases like gall-bladder perforations, empyema, acute common duct occlusions, etc., the mortality rose to 14.5 per cent for 117 cases. When the main bile ducts had to be opened the mortality jumped to 46.1 per cent.

The author had two cases which died twenty-four and thirty-six hours, respectively, after onset of their first attack of biliary disease. Both of these were markedly jaundiced and died of hemorrhage.

Coagulation time of the blood has no relation to depth or degree of jaundice. In the jaundiced patient the bile salt concentration of the blood is never increased to the point where it can inhibit coagulation. The hemorrhagic diathesis is due to functional disturbances of the liver.

A third group of cases reported were the protracted acute or subacute cases with no tendency to heal. These represent cases of stone occlusion of the common duct. Operation was not immediately imperative in these. On the author's series 31.4 per cent of the cases of common duct stones had no icterus; Arnsperger, 15.5 per cent; Pauchet, 30 per cent.

In the cases of fifteen transduodenal choledochotomies performed, the mortality was 13.3 per cent; Lorenz, with 136 cases, 15 per cent. Pancreatic injury never seen by this method. Drainage was always instituted for stones thought to be left behind and in presence of cholangitis. Stenosis as a result was never seen.

Cholecystostomy was performed in 21 cases as an emergency operation in cases of empyema of the gall-bladder and in cases of abscesses in the surrounding region. His mortality was 9.5 per cent. This operation was always followed, usually at the end of four weeks, by the secondary cholecystectomy.

Of the 427 operated cases, 98 were in males and 329 were females, a ratio of 1:3.3.

The occurrence of the first attack of gallbladder disease was in more than 33 per cent of all the cases during pregnancy, parturition or the puerperium. This the author believe to be due to mechanical factors, infection and particularly puerperal infection. In spite of the high cholesteremia, Lichtwitz says, pregnancy and parturition precipitate the first attack but not stone formation, which he believes is pre-existent.

Pregnant and puerperal women with cholecystitis have an especial tendency toward severe complications, like perforation of the gallbladder, empyema and pyemia. The condition is mistaken for puerperal fever. Cholecystectomy is advisable during the first six months of pregnancy. Interruption of pregnancy is contraindicated.

In 243 interval operated cases there were 23 with jaundice in whom no common duct obstruction was found. The jaundice was attributed to spasm of either the sphincter of Oddi or of the duodenum.

Choledochoduodenostomy was performed in cases with irremovable obstruction in the ampulla of Vater.

Causes of recurrence of symptoms after cholecystectomy were attributed to (a) stenosis of ampulla, (b) duodenal spasm, (c) cholangitis, (d) overlooked stones, (e) mistaken diagnosis, (f) pancreatitis.

One-third to one-half of all cases of gallbladder disease develop their first attack after forty years of age.

Mortality in cholecystectomy is proportional to age, because of greater duration of the disease.

Gallbladder disease occurs earlier in life in women than in men but the mortality is greater in the latter.

Hypo- and hyperchlorhydria were found about equally frequent in cholecystic disease.

The author uses the oblique incision, parallel to the lower costal border, in his cholecystectomies. In 191 cases answering out of 329 cases operated, eleven, or 5 per cent, developed incisional herniae. These required drains for infection. Of forty-two cases with pararectus incision, eighteen answered and three, or 16 per cent, had herniae.

The author used lumbar anesthesia in 143 recent cases.

Prolonged drainage from a wound following simple uncomplicated cholecystectomy is due, not, as commonly believed, to slipping of the ligature on the stump of the cystic duct, but to injury of the so-called ductus hepatocystici (Odermatt), or to vasa aberrantia. The author drains all his wounds.

There were 39 cases of carcinoma of the gallbladder in this series: Twelve (30 per cent) died from the operation (cholecystectomy), six from peritonitis, three from hemorrhage, one from heart failure, two from cachexia. Of fourteen cases with primary carcinoma of the gall bladder, five had icterus and of these, two had metastases to the liver. Two cases (radically operated) lived two years each and the rest (palliatively operated) died within about seven months. Many, however, were relieved of their icterus and life made more tolerable.

In ten of the primary carcinoma cases, stones were found in the gallbladder.

(B) END-RESULTS AFTER OPERATION FOR INFLAMMATORY DISEASES OF THE GALLBLADDER

In this second part of the paper the author reviews the end-results on all the follow-up cases. All these were operated previous to 1924. As criteria of success following cholecystectomy he uses (1) freedom of symptoms, and (2) capability of working, as his yardstick. He received complete reports on 293 cases, or 73.1 per cent of all operated cases. Of these, 91 per cent were completely capable of work and 8.4 were capable either of light work only or were incapable of any work whatsoever. He divided the 293 cases into five groups as follows:

(A) Fully capable of work—250 cases

1. 208 cases (76.6 per cent) completely symptom-free.
2. 29 cases (10.5 per cent) improved.
3. 13 cases (4.7 per cent) slight improvement.
- (B) Unhealed cases—23 cases (8.4 per cent)
 4. 9 cases (3.2 per cent) symptoms limit amount of work or make them totally incapable of work. Symptoms, however, improved after cholecystectomy.
 5. 14 cases (5.1 per cent)—(incapable of any work whatsoever)
 - (a) Recurrent cases.
 - (b) Operation didn't improve condition.
 - (c) Operation made their condition worse.
- (C) 18 cases died of intercurrent infection in no way related to their biliary disease.

Two cases unaccounted for by author.

Total 293 cases.

The Lyon method of biliary drainage with $MgSO_4$ and hypophysin was reported good in many cases. It is contraindicated in phlegmonous cholecystitis and acute cases because of danger of perforation.

All cases whose symptoms had not lasted longer than one week previous to operation and who had no previous biliary attack were permanently cured by cholecystectomy.

Of fifty-seven cases on whom cholecystectomy plus hepatic drainage or transduodenal choledochotomy was performed, forty-one, or 71.9 per cent, could be re-examined. Two, well one year, died of intercurrent disease, as well as two on whom a secondary laparotomy was performed. Of the remaining thirty-seven, twenty-nine (78.4 per cent) were completely healed, four were essentially better and one so much better he is capable of work.

The author believes it is not so much the duration of the disease previous to operation which governs the end-results as the type of the original disease, i.e., frequency of attacks. The greater the frequency of attacks the worse the prognosis.

Of twenty-six cases, originally operated for empyema of the gallbladder, 21.7 per cent could not work. This was attributed to complications like indurative pancreatitis and cholangitis. The end-results are better if cholecystostomy is done first, followed later by cholecystectomy. If the gallbladder wall is severely involved, i.e., gangrenous, he does cholecystectomy primarily. When bile in these cases is bacteria-free, they may almost always be found in cultures of the wall. The author cannot agree with Rovsing and other Nordic surgeons in doing only cholecystostomy as the operation of choice. He thinks highly of cholecystostomy as an emergency operation.

H. J. DVORAK.

ANURIA—REPORT OF NINE CASES: Daniel N. Eisendrath, Chicago (Jour. of Urol., April, 1931, Vol. XXV, No. 4). Of special interest to the surgeon who deals with urinary diagnosis in surgery, is the report of nine cases with a rather thorough discussion of this

subject by the author, from the standpoint of both diagnosis and treatment.

Anuria is grouped in three types: (a) Secretory. (b) Obstructive. (c) Transitional or combination groups of anurias.

The secretory type is due to cessation of secretion proximal to the kidney or within its parenchyma, and caused by a disturbance of circulation proximal to the kidney itself, such as a vascular spasm of the main renal vessels, as the result of stimulation of the splanchnic nerves; or reflex inhibition of secretion, as the result of peripheral irritation, such as after passing of urethral instruments, after sudden evacuation of the bladder, and after ureteral catheterization; or embolism or thrombosis of the main renal vessels of both sides or of one side with reflex irritation of the opposite kidney; or a marked decrease in blood pressure as often seen in shock; or dehydration due to loss of large quantities of fluid, as seen in cholera, severe hemorrhage, intestinal obstruction with repeated emesis; as well as in advanced cardiac decompensation. Disturbances of the renal parenchyma include the various types of nephritis and nephrosis, such as anuria after scarlatina, bichloride, and similar chemical nephroses, and the anuria in pregnancy, and after nephrectomy. In the latter case, the parenchyma changes in the remaining kidney have either been overlooked or underestimated. Prostatectomy may be followed by anuria. The majority of these are due to renal parenchyma changes, but many are best explained by peripheral irritation. Anuria is comparatively rare in bilateral tuberculosis, neoplasms and polycystic disease.

The second, or obstructive type, is due to unilateral block by calculus, stricture, injury to neoplasm with normal opposite kidney, due to reflex inhibition of the secretory activity of the opposite organ; or a unilateral block by calculus, stricture, injury or neoplasm with congenital absence, lack of development, or complete loss of function, as the result of disease or injury, or due to the absence of the opposite kidney as the result of a previous operation; or due to bilateral block by calculus, stricture, etc.

In the third, or transition or combination group of anurias, the author places those which follow transfusion, burns, gas bacillus infection, potassium chlorate poisoning and blackwater fever from malaria, because of the obstructive factor of the concentrated blood in the renal tubules by hemoglobin crystals, and the interference with the secretory activity of the renal parenchyma.

The author then reviews the typical urologic examination, laying stress on the importance of diagnosis before the end of the period of tolerance is reached. By the period of tolerance he means the interval between the time when the anuria is first noticed and the appearance of symptoms of uremia. The examination includes:

- (1) Palpation of the abdomen for enlargement of one or both kidneys.
- (2) Catheterization of the bladder to determine the absence of urine.
- (3) Plain radiography, to determine the presence of

calculus, remembering that about 15 per cent of all renal and ureteral calculi are shadowless.

(4) Cystoscopy and ureteral catheterization. Pyelography is contra-indicated during an anuria, but can be done a few weeks later.

(5) Blood chemistry, to determine non-protein nitrogen contents and creatinin.

The treatment of anuria is listed in the following steps:

(1) Administration of large quantities of fluid.

(a) By proctoclysis.

(b) Hypodermoclysis.

(c) Intravenous administration.

(d) The use of the duodenal tube.

(2) Nerve blocking—overcoming splanchnic nerve irritation.

(3) Decapsulation.

(4) Ureteral catheterization.

(5) Operative measures.

The nine cases reported are very instructive, and there are nine illustrations.

A. E. SOHMER, M.D.

OPERATIVE TREATMENT OF SYRINGOMYELIA: Dr. G. Ellmer, Tübingen, Germany. (*Der Chirurg*, Vol. 3, No. 6, March 15, 1931.) The author states in his review of this subject that the operation of syringomyelotomy, which was proposed by Poussepp in 1926, has not been done frequently to date. The literature, up to the summer of 1930, reports sixteen cases, of which two came from German Clinics (Foerster, Schmieden). In almost all of the cases improvement occurred. Oppel, who operated six cases, had one poor result, and Gehuchten reports a case in which there was improvement for several months, but returned to the original condition after one year.

The present author reports a case which he operated over a year ago. A carpenter, age 25, developed an increasing disability of both hands. Small wounds healed slowly; movement of fingers was interfered with, and sensation became dulled, with pain on exposure to cold. These changes were more marked in the left hand than in the right. After one and a half years, it gradually increased, so he was completely disabled from work. His general health was good; the cranial nerves showed a weakness in the facial on the left side; the left pupil and palpebral fissure were larger than the right; there was atrophy of the thenar and hypothenar regions, and in the interosseous spaces; the fingers assumed a claw-like attitude; the right hand showed the same changes, but less marked; motility of fingers was more disturbed on the left side than on the right; there was bilateral hypalgesia; temperature sense was moderately disturbed; the abdominal reflex was absent on the left side, and there was bilateral positive Babinski.

The diagnosis was syringomyelia, pointing to an in-

volvement of the cord in the region from the sixth cervical to the first dorsal segment. Myelography was made; 35 minutes after injecting the contrast fluid suboccipitally, it showed exclusively on the right side, due, no doubt, to the greater involvement of the left side of the cord; after 65 minutes the contrast fluid was halted at the level of the seventh cervical vertebra; two hours later the greater part of the fluid was at the level of the third dorsal vertebra, and after 24 hours it had all passed to lower regions. It gave an indication of the probable location of the intramedullary cyst in the lower cervical region.

Operation was done under an avertin-ether-narcosis; laminectomy from the sixth cervical to the fifth dorsal was made. The dura seemed under tension somewhat and showed but slight pulsation. A small stab incision released fluid under considerable pressure, the fluid spurting up to a height of 5 cm. Enlargement of this incision showed that the intramedullary cyst was entered, and the fluid, therefore, was cyst contents, the high intramedullary pressure pressing the cord against the dura; the wall of the cyst was thin; probing showed the cyst extending for a considerable distance up and down—the exact extent not being determined. A strand of muscle tissue was inserted in the opening to prevent closure by adhesion; the dura was carefully closed and the wound likewise, in layers. Convalescence was smooth.

The day after operation, the patient was rid of the feeling of cold in his hands. There seemed to be better circulation, and they were warmer on discharge from the clinic; five months later there were no further changes; again one year later there were no further changes. Considering that the disease before operation was advancing rather swiftly, the fact that there was a standstill of further progress for a period of a year after operation was enough to justify the same. The earlier the drainage is done, the better would be the result, because it is known that cord tissue once degenerated cannot regenerate.

The other cases reported in the literature also, excepting one, showed definite improvement. In discussing the technic of the operation, the author compares the incision in the posterior median fissure to that in the region of the antero-lateral column, as performed by Oppel; the latter incision being that which is usually done for cordotomy; excepting that for syringomyelia it is lengthwise instead of transverse.

The author concludes by suggesting this operation in cases of advancing syringomyelia; in this way preventing an advance of symptoms, such as would be caused by increasing pressure causing destruction and degeneration of the spinal cord tissue. The latest post-operative report was by Foerster, whose patient, after two years, was practically well.

A. E. SOHMER, M.D.

BOOK REVIEWS

Books listed here become the property of the Ramsey and Hennepin County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

HEALTH ON THE FARM AND IN THE VILLAGE. C.-E. A. Winslow, Dr. P. H. Professor of Public Health, Yale School of Medicine. 281 pages. Illus. Price \$1.00. New York: The MacMillan Company, 1931.

TEXTBOOK OF HISTOLOGY. Eugene C. Piette, M.D. Pathologist and Director of the Laboratory of the West Suburban Hospital, Oak Park, Illinois, etc. 466 pages. Illus. Price \$4.50. Philadelphia: F. A. Davis Company, 1931.

A TEXTBOOK OF SURGERY. John Homans, M.D. 1,195 pages, with 513 illus. Price \$9.00. Baltimore: Charles C. Thomas.

The modern tendency of medical textbook writers to serve more as editor than as author is evidence of healthy modesty and is to be commended highly as conducive to reliability and accuracy. This volume is the result of a concerted effort by the department of surgery of Harvard Medical School to provide an adequate textbook of surgery for medical students. Doctor Homans accepts full responsibility for the entire contents and the words are all his, but the essence of most of the chapters was furnished by twenty-three members of the faculty, and they approved each chapter in its final form. Surgery is too great a subject for the compass of any one mind and the authoritative scope of this volume is extended by its collective authorship. It may be worth mentioning that this is one textbook which was not written at the solicitation of a publishing house.

The book is well put together and attractively printed. There are a few typographical errors, as creep into

most first editions. The paragraph headings are selectively italicized or printed in bold-face type to facilitate finding a subject one may be seeking. The book is not cumbersome nor so large as to be appalling to the medical student. The illustrations are almost entirely line-drawings, which are not beautifully decorative but admirably serve their purpose of illustrating the subject matter of the text. The author's style is easily readable, concise, and he usually says the things the student wants to know, or at least should want to know. No ambiguities were noted.

The author rarely attempts to teach that which is not learnable from books; there is little space devoted to operative technic. However, certain technical procedures that a medical student is apt to be called upon to do, such as lumbar puncture, are described in detail in smaller type. Anesthesia might have been given a little more consideration. The subject index of twenty-three pages might be even more detailed to enhance the value of the book as a reference volume.

A feature of the book is a brief historical account at the beginning of each chapter. These are invariably interesting, usually instructive, and constitute about the amount of medical history that the average medical student can be persuaded to read at any one time. Another feature of the book is an unusually complete bibliographic index, which gives also many old original references of classic works.

This book represents the best of surgery as practiced in a foremost medical center; a center rarely given to fads nor yet as conservatively reactionary as some enthusiasts would say. It is a textbook from a group whose leadership in the field of medical education has been well recognized. The medical student will find in it the principles of surgery easily grasped; it beautifully fulfills its purpose for him. The internist and specialist may determine from it the practice of present day surgery. The surgeon may read it with profit as a standard with which to compare his own practices. The need for such a volume and the completeness with which this book fills that need justify a prediction for it of widespread circulation and usefulness.

T. LINCOLN HYDE, M.D.

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